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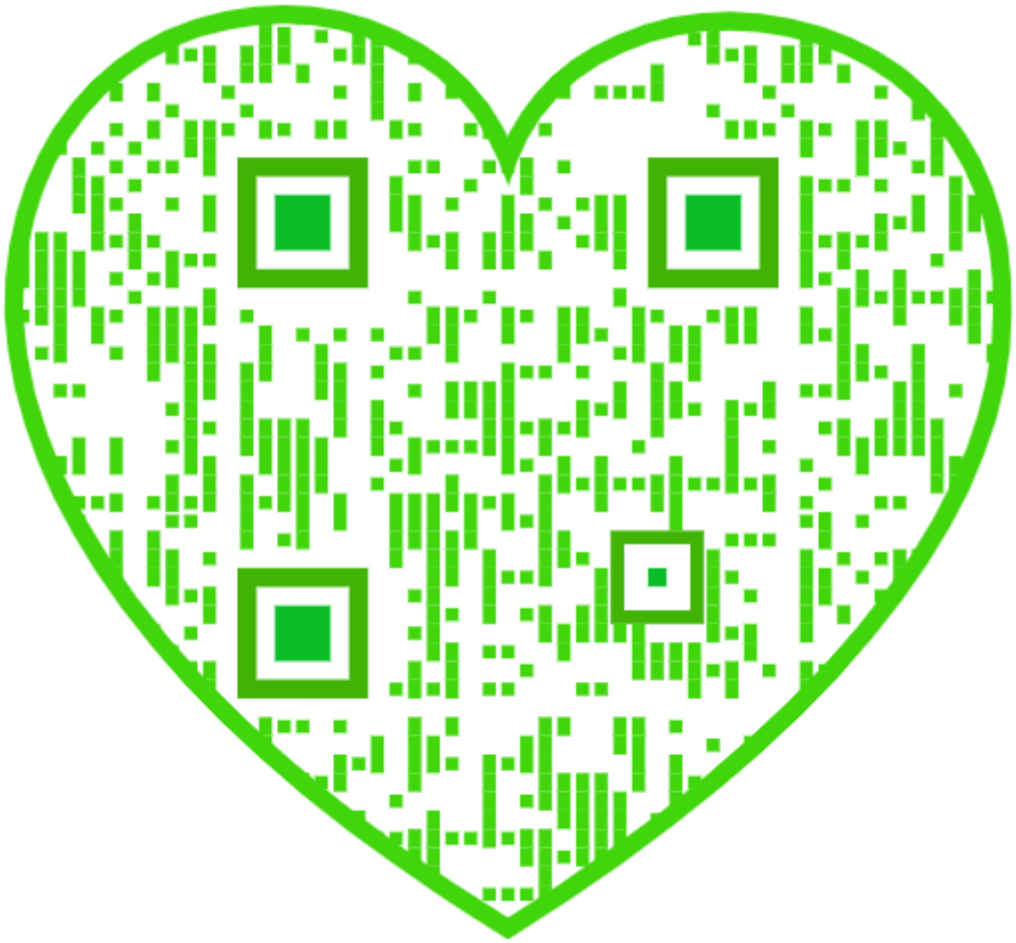

How to make Indian and other Baskets.

By George Wharton James

AUTHOR OF

INDIAN BASKETRY,

THE GRAND CANYON OF THE COLORADO RIVER IN ARIZONA,

THE INDIANS OF THE PAINTED DESERT REGION,

ETC., ETC.

1903

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Dedication.

TO MY FATHER

JOHN JAMES

ONCE A BASKET MAKER

"A WORKMAN THAT NEEDED NOT TO BE ASHAMED"

WHO, THOUGH DEAD, YET LIVETH

IN MANY REMEMBRANCES OF HIS NOBLE

AND STRENUOUS LIFE EVER UNSELFISHLY

AIMED TOWARDS THE HIGHEST GOOD

OF OTHERS.

ALSO TO

JOHN PHILIP SHERIDAN NELIGH,

ONE OF THE FIRST

IF NOT

THE FIRST

TEACHER OF BASKETRY

IN THE PUBLIC SCHOOLS

OF THE UNITED STATES

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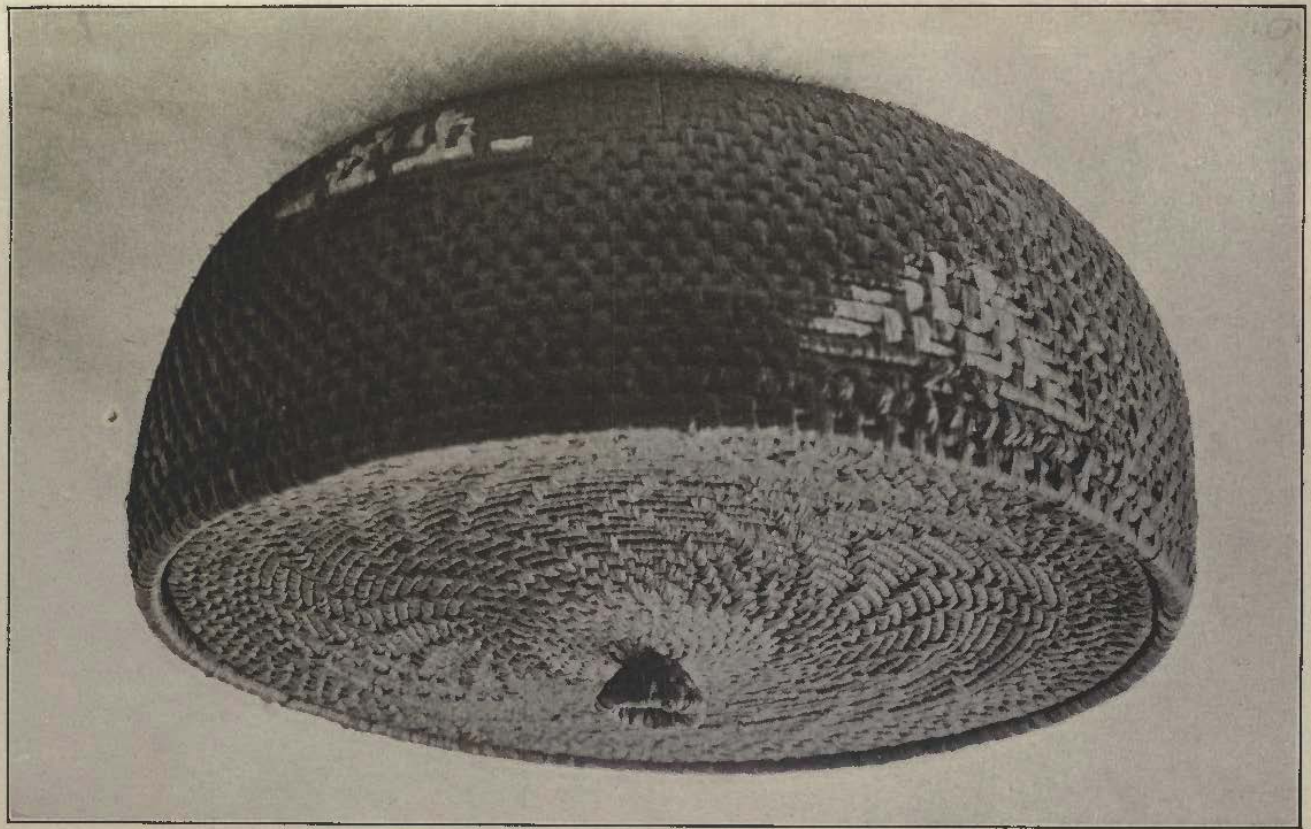


HOW TO MAKE INDIAN AND OTHER BASKETS.

INTRODUCTION.

Just now the making of Indian and other baskets is a fad. Like all other fads it will have its day and then die. But unlike many fads there is something in the making of baskets that will keep the art alive, when those who practised it merely as a fad have forgotten that they ever were interested in it.

It is singularly appropriate that I, the son of my father, should write a treatise on basket making. The earliest remembrances of my life are connected with that art, as my father was a basket maker, not simply a trader in baskets, but personally a skilled workman himself. My oldest brother, too, learned the art and was a good workman.

Well do I remember, as a child, a season when coal was dear and scarce, as during the recent Eastern coal strike. My father, always a man of originality, rose at once to meet the occasion, and made a mixture of coal dust and the thick ends or "nubbins" cut from the ends of new splints or "weavers" introduced into the coarse kinds of baskets.

We used the old-fashioned English grates, and after a fire of coals was well alight my father would take a coal scuttle full of this mixture which he called "backing," and throw it up on the top of the fire and well back into the throat of the chimney. In half an hour or less it would be a bed of fire, throwing its grateful heat into the cold room and cheering all who came within its influence.

Two of his workmen were father and son, named Fields. The young man was "Lige," and into my youthful ears he used to pour his tales of woe at the hardships of a basket-maker's life. In the making of some of the larger and coarser baskets the bottoms, after being started, were pinned through the center with a large steel bodkin to a heavy flat board, and, treading on the work itself the weavers were woven in, the worker bending down almost double over the work. When I bent over for a few minutes my childish back seemed to be broken, and when I asked Lige how he could endure it for hours at a time his solemn asseveration was that "he'd had his backbone taken out," or he never could do it.

After I came to the United States the work of the Paiuti Indians soon arrested my attention, and I began the studies which culminated two years ago in the publication of my "Indian Basketry."

Now that the work of Basket Making is being taken up in earnest, I wish to do my share in helping it along by making a book of helpful instructions and hints that will be worthy the dignity of the subject.

It has been my purpose in arranging the following pages to introduce all the stitches, practically usable, from the simplest to the most complex. The earlier lessons, of course, are for children, but it will do

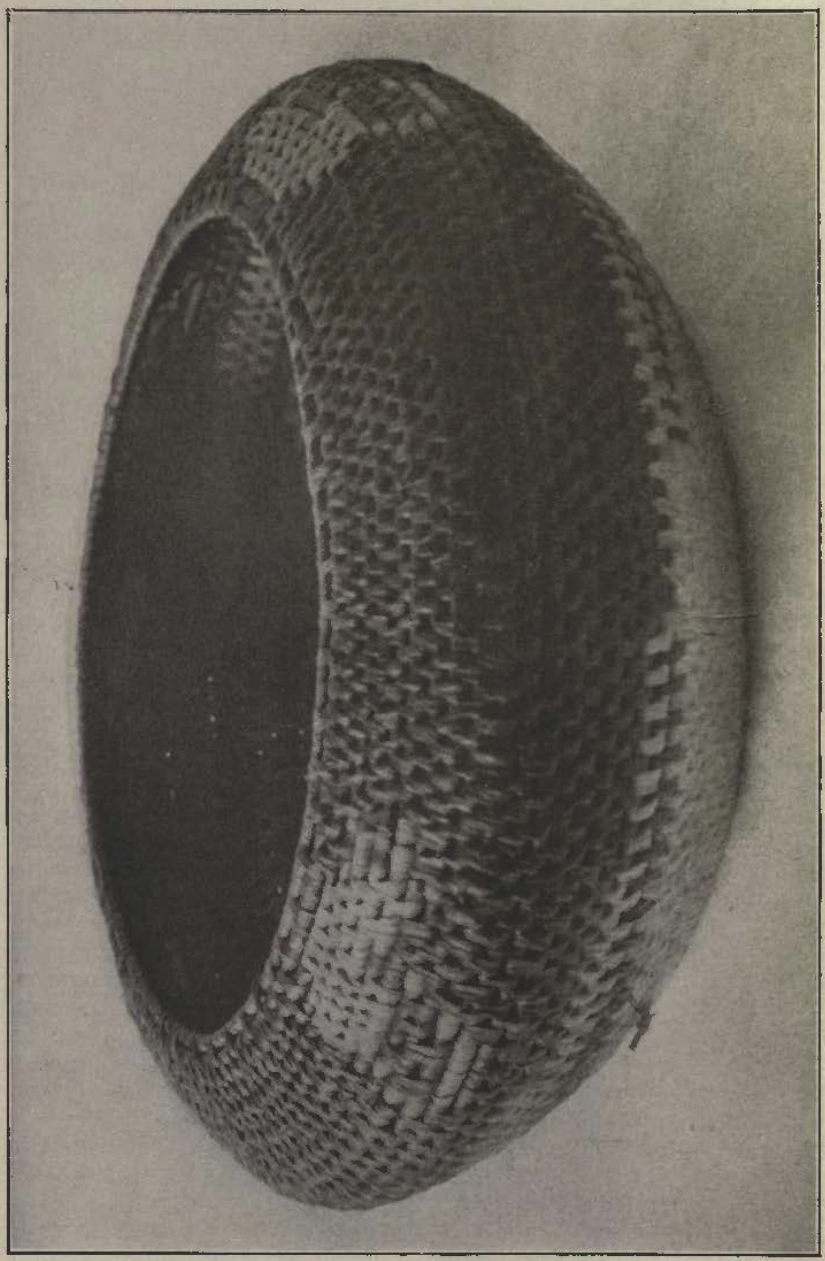


FIG. 2. THE MOUSE BASKET, DESIGNED AND MADE BY E. JANE HAWKES, DEERFIELD, MASS.

no harm to adults to do the work here outlined. The skill and dexterity thus gained will be exceedingly useful in the later work.

A variety of materials has been introduced purposely, to show what may be done and to stimulate to personal investigation and experiment. Teachers should encourage their pupils to try every possible material. Thus invention is stimulated, and not only may valuable discoveries be the result, but individual thought and expression are secured.

Let me at the outset say that the divisions of the subject are purely arbitrary. It does not necessarily follow that the coil weave is harder than the mat weave because the latter comes first in the book. It was necessary to make some divisions, and these were thought the best for the purpose in view.

In this work I have tried to suggest to the teacher how to make the subject more interesting to her pupils. Put human interest into any subject and it enlivens it. A pile of rocks means little to an unimaginative child, but tell that same child that this pile was once a castle, peopled by lords and ladies, who lived in stirring times; who achieved things; who went forth to war with all pomp and ceremony, and returned flushed with victory or sad and despondent through defeat; that it was a place where children were born, educated, married and died; where lovers, true and false, walked and plighted their troth; indeed, where all the events that go to make up life transpired, and the lifeless pile is transformed into a palpable. living entity, or, at least, into an object from which imagination may conjure countless fascinating and interesting pictures.

It is this thought that should animate every teacher and worker in basketry. In going out to choose materials let the children feel as the Indian felt; let them select as the Indian did. Teach them the value of failure. That failure means endeavor, and endeavor persisted in is never failure. That the Indian had to learn everything in that way. She had no other teacher than experience, and that knowledge gained by experience is sure and certain, while what we read or are told may be inaccurate or positively false.

Let the child experiment in the drying, dyeing, and general preparation of the material; let him make his own selections; let him determine what is best adapted for this basket and for that. Stimulate his inventiveness in the use of materials, and dyes, and their preparation and in the shape, design, and weave of his baskets. Show him that all progress comes that way. Let him know that while he is doing this experimenting he is following exactly the plan of Edison, and Gray, and Bell, and Lowe, and others of our great inventors who have given us telephones, telegraphs, electric cars, water gas, and the thousand and one things that mean our progressive civilization.

For material for these pages I have ransacked everything I could find. Where possible, I have given full credit for everything borrowed. If I have failed to do so I gladly apologize and in later editions will make the necessary acknowledgements or corrections if some kind reader will call my attention to them.

Especially do I wish to thank Mr. John Sheridan Neligh, director of the Industrial School of Columbus, Ga., and, as far as I can learn, one of the first, if not the first, teacher of basketry in the schools of the

United States, for original suggestions, baskets to photograph, and help given in a variety of ways. And these thanks also include his helpful wife.

My grateful acknowledgements are also tendered to Miss Annie

FIG. 3. CORN HUSK POPPY BASKET, DESIGNED AND MADE BY MARGARET C. WHITING, DEERFIELD, MASS.

Firth, from whose "Cane Basket Work" I have bodily taken much valuable material. I hope in return Miss Firth will find as much in my suggestions that she can avail herself of for English readers. If she can, I assure her she is most heartily welcome.

Miss Mary White's "How to Make Baskets" has also been drawn from.

Miss M. B. Hyde, of Teachers' College, Columbia University, has been most generous in her helpfulness. For all the photographs of

work made by the students at the college and the major part of the chapter on dyes I am indebted to her, and the practical character of her work will prove a boon to all my readers.

In these lessons I have begun with the simplest materials and work. The purpose is to give to the solitary student every advantage for self training and to every teacher suggestions which will aid in her work with children. To any person the exercises will be helpful.

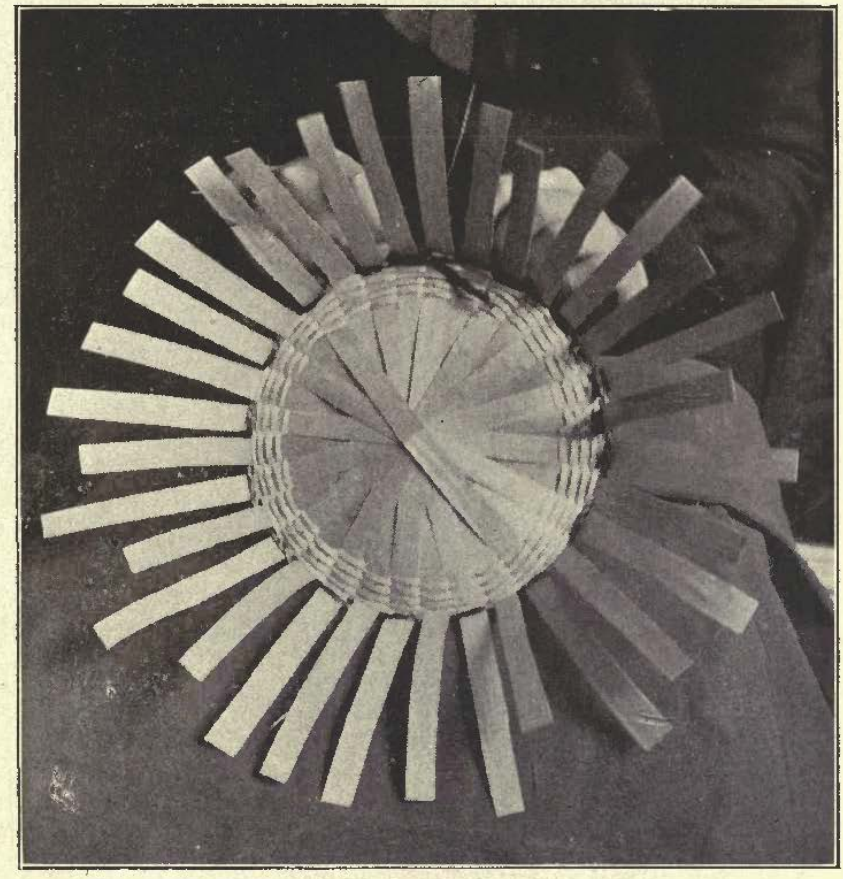


FIG. 143. SPOKES TURNED UP FOR SIDES.

There are five simple methods of work, all of which it is well to understand. These are distinguished by the following names: I. The mat. II. The plait. III. The net. IV. The coil. V. The web. While in some regards these five methods overlap each other, I have deemed it best to discuss each one separately.

The two chapters respectively on The Choice and the Preparation of Materials may be skipped or not as the reader desires.

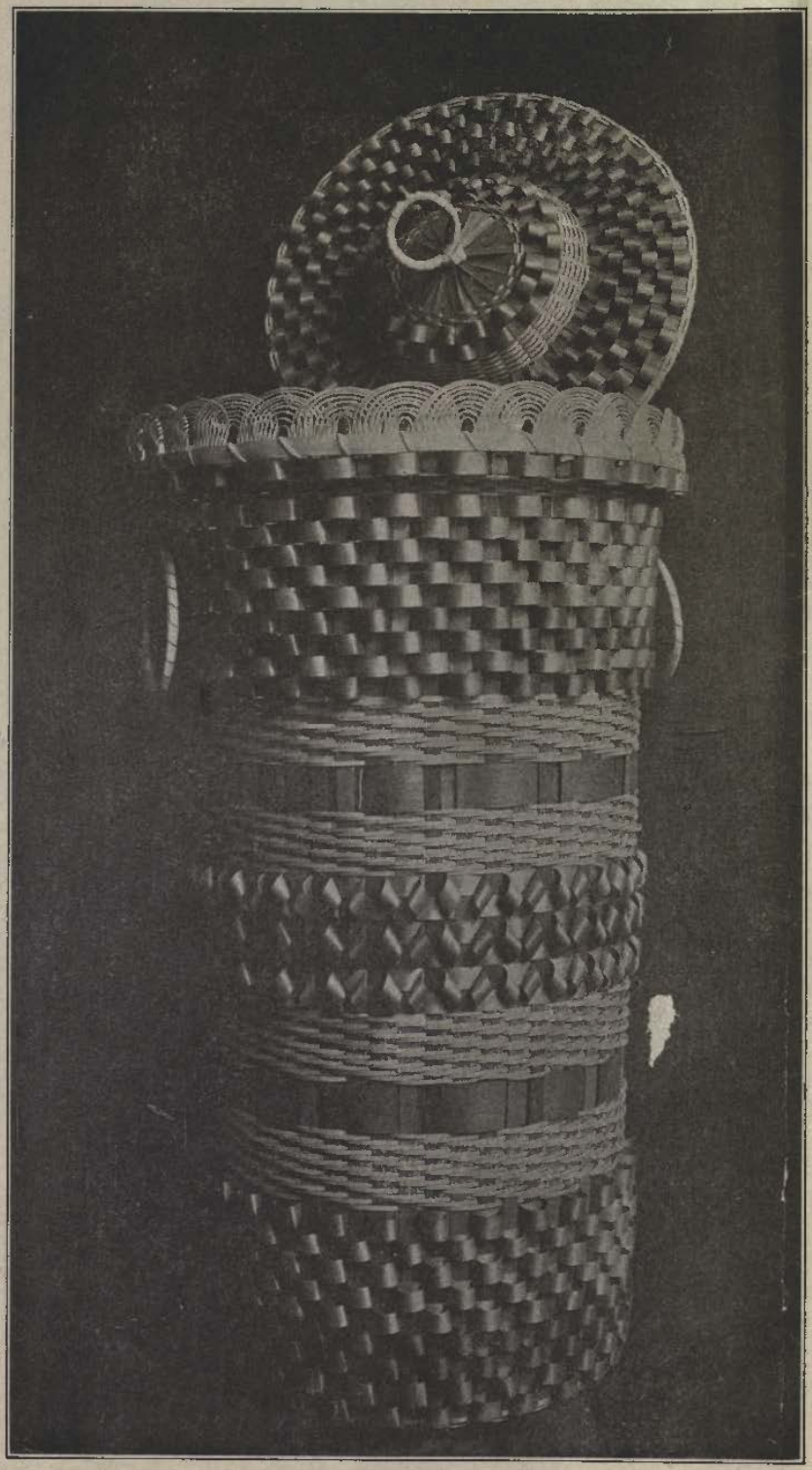


FIG. 4. FANCY SPLINT BASKET.

Courtesy Hyde Exploring Expedition, New York.

CHAPTER II.

THE SPIRIT IN WHICH BASKET MAKING SHOULD BE APPROACHED.

Browning well wrote:

"Not on the vulgar mass called work
Must judgement pass."

There is more in life than the mere outward expressions of it we call "work," and in the work of basket-making much will depend upon the motive, the spirit, in which it is approached and done. The true imitator of Indian work—or, perhaps, it would be better to say, the true worker desirous of emulating Indian work—must approach it in the true Indian spirit and this I have endeavored to describe in my larger book on Indian Basketry. Suffice it to say here that the basket to the uncontaminated Indian meant a work of art, in which hope, aspiration, desire, love, religion, poetry, national pride, mythology, were all more or less interwoven. Hence the work was approached in a spirit as far removed from that of mere commercialism, passing whim or fancy, as it was from that of levity, carelessness, or indifference.

There was an earnestness of purpose, a conscientiousness of endeavor in the gathering of the materials, their preparation, their harmoniousness, and then in the shape, the design, the weave, the tout ensemble, that made basket-making to the old Indians almost an act of religion.

It was a perfect exemplification of the idea suggested by the good poet Herbert, I believe, who said something of the sublimity of the right sweeping out of a room.

Now all this is the veriest nonsense to the person who is merely making baskets for "the money there is in it," or "because it is quite the rage," and such people had better read no further. But to the emotion-full, sentient, poetic of my readers the ideas given will clearly illuminate what follows. The attitude of mind and heart in the basket-maker clearly should be: If the poor uncivilized Indian thus felt when she approached her work, should not I, the product of a higher civilization, at least feel as much?

If she sought to present the highest she saw in Nature in the most perfect fashion, should not I also seek to do the same?

An affirmative answer then compels a study of Indian Basketry forms, designs, colors and weaves. This will produce a growing love for them. From this the natural process will be a reference of the Indian work to their original source, viz., Nature herself. And in Nature the true inspiration will be found. The Indian's forms are natural; her designs are natural; her colors are natural; her weaves are natural; with all the perfection added of conscientious art.

This at once eliminates the hideous and grotesque in shape, design, color and weave. There are no fanciful forms, impossible designs, glaring, inharmonious colors, inadequate weaves. Simplicity

is the keynote, and upon this the triad and gamut naturally are built. Diversity without end, variety illimitable, effects incalculable, yet all based upon natural simplicity.

Begin then by training yourself, your children, your pupils, to love the simple in nature. Learn to imitate in form, design and color the

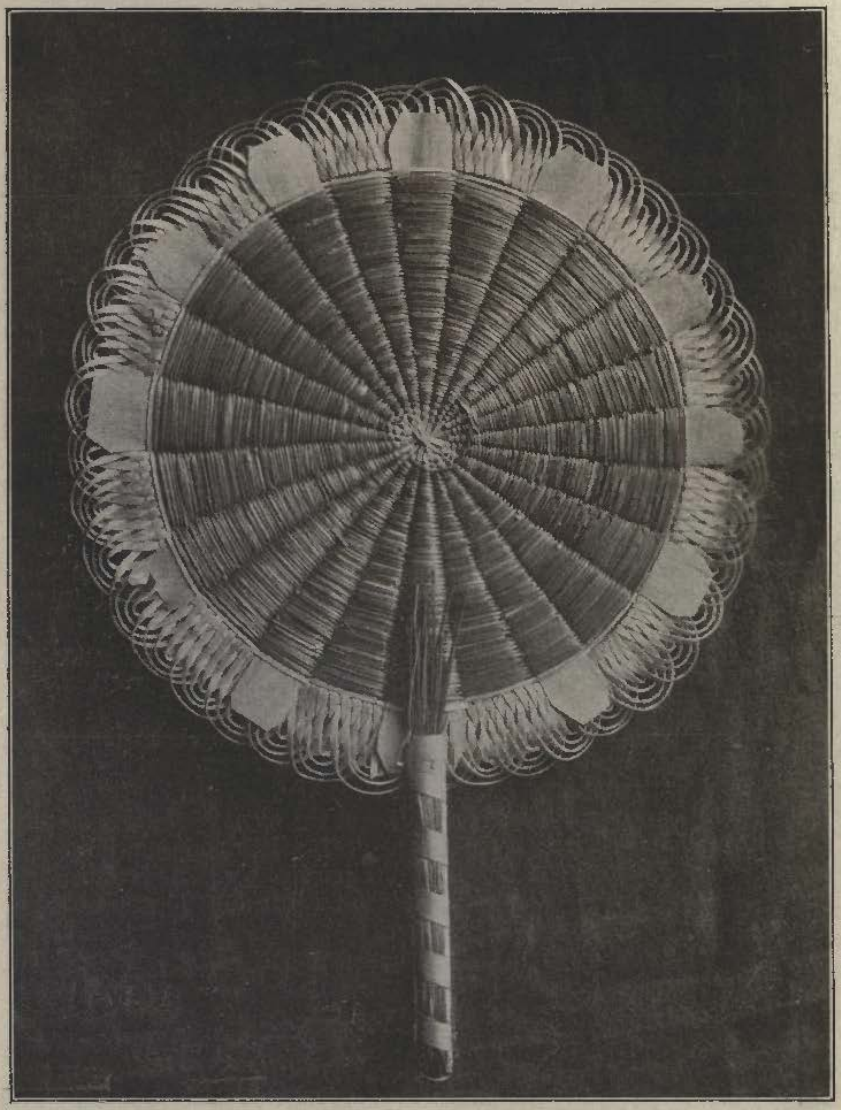


FIG. 5. SPLINT AND SWEET GRASS FAN.
Courtesy Hyde Exploring Expedition, New York.

simple things. Banish the hideous, the grotesque, the unnaturally complex from your line of observation, and your work will gradually take upon itself the character, the grace, the dignity, the power that come from purity and simplicity.

Elsewhere, too, I have shown the marvellous personality of the basket. How that each one has a significance in shape, design and color all its own. This personality cannot be deciphered by reading from elements as in hieroglyphics, but can be learned only from the weaver's own lips. In your work endeavor to follow this Indian idea. Make your basket the exponent of something within yourself, then the shape, the design, the colors will all mean something more to you than what merely shows on the outside. You can thus make the basket your poem, your sculpture, your painting, your cathedral, as the Indian

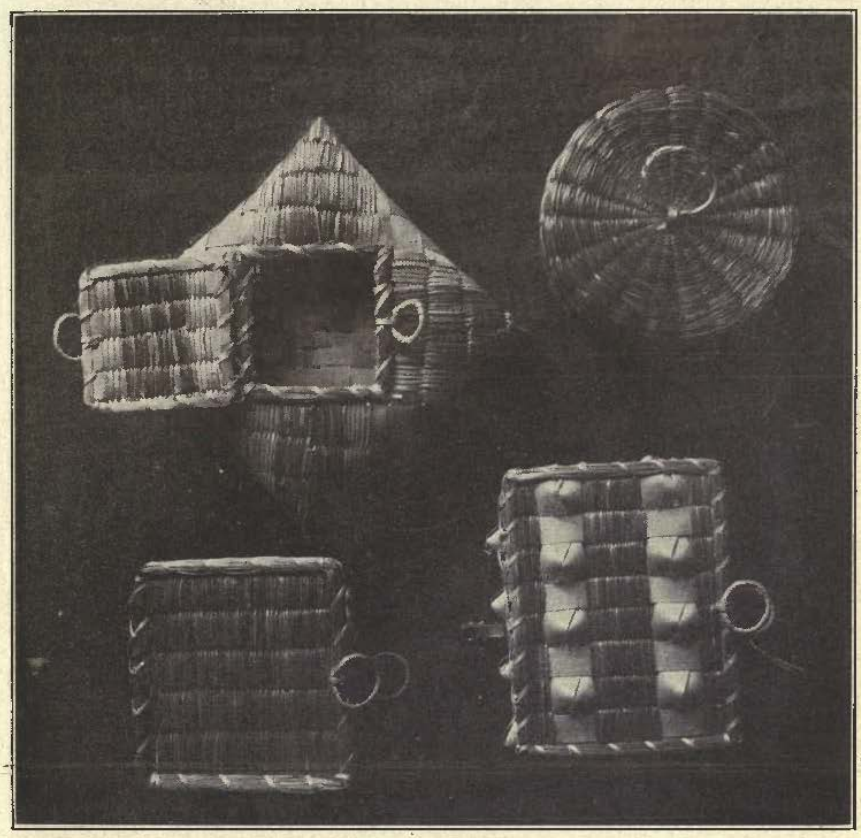


FIG. 6. BASKETS OF SPLINT AND SWEET GRASS.
Courtesy Hyde Exploring Expedition, New York.

has done. Thus work and worker are both ennobled and there are given to the world more things of beauty to be "joys forever," and whose "loveliness will increase and never pass into nothingness."

The pleasure of such achievements as this who can tell, and the moral uplift as desire and endeavor are crystalized into actuality, who can estimate?

Thus the basket becomes a factor in moral and spiritual development, as well as a useful aid in training towards manual dexterity and skill.

CHAPTER III.

CHOICE OF MATERIALS.

Here, as elsewhere, the method of the Indian is the best to follow, if one would get the real value out of basket making. Though trade and barter were common with the primitive Indians, it was not to trade that the weaver looked for her basket-making materials. She had no store to which she could go and purchase cane, raffia or willow ready dyed and done up in bundles to her hand. She must find the materials in her own environment. So with eyes a-down, senses alert, she set

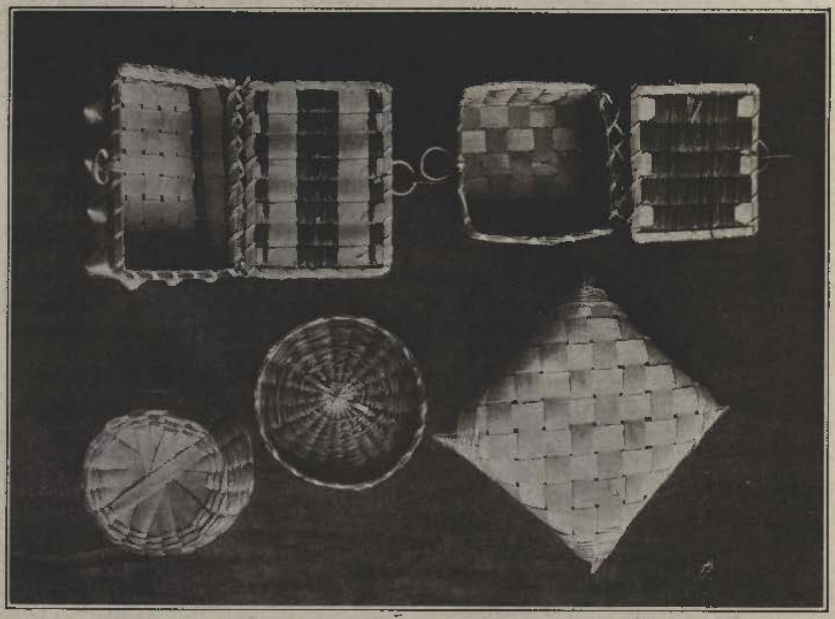


FIG. 7. BASE OF BASKETS SHOWN IN FIG. 6.
Courtesy Hyde Exploring Expedition, New York.

forth to seek for splints, filling and dye. The Hopi found the willow, the yucca and a desert grass called wu-u-shi. The Mono found the willow, the red bud, the squaw-grass, the root of the tule, the martynia. The Haida found the cedar bark and spruce root; the Poma slough root, sweet grass, maiden hair fern stem. Thus each locality yielded to its weavers the materials required for the exercise of their art. Now while it is not essential that white weavers of baskets should closely confine themselves to material they personally gather, some of the chief benefits that should accrue from basket-making are lost if they do not largely do so. The powers of observation are stimulated, knowledge of local materials gained, and, where the art is used

to help the poor commercially, hitherto useless material is converted into a financial benefit, which is a new and direct gain to the community.

There are few really useless things under the sun, and the history of all commercial growth is largely the detailing of how the useless was converted into the useful by invention, imagination and skill. This principle should be applied to this art.

In some instances there can be but little question that the location of materials for the pursuit of the art of basket weaving has deter-

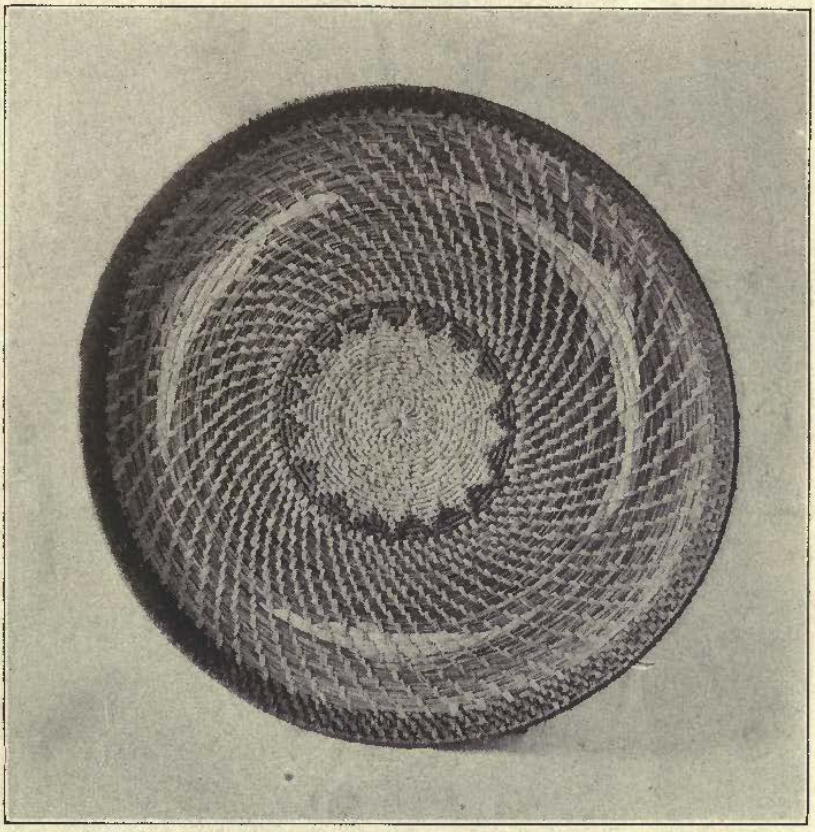


FIG. 8. SWALE GRASS TRAY, DESIGNED AND MADE BY GERTRUDE ASHLEY, DEERFIELD, MASS.

mined the settlement of a tribe of people. The Chemehuevis, for instance, have a tradition which clearly points in a measure in that direction. We know that among civilized races habitat is largely determined by commercialism. The miner locates in the desert, canyon or mountain camp because there he finds the precious metal. The cattleman lives near the range where his cattle roam; the foundryman near the foundry which employs him; the clerk near the store in which he is engaged.

So the Indian woman's voice was naturally raised in favor of a location where her basket-making material was easiest obtained.

This hint can be made interesting by teachers of the art, in stimulating the imagination of the child. It can also be used to excellent

FIG. 9. THE RED BIRD BASKET, DESIGNED AND MADE BY MADELINE Y. WYNNE, DEERFIELD, MASS.

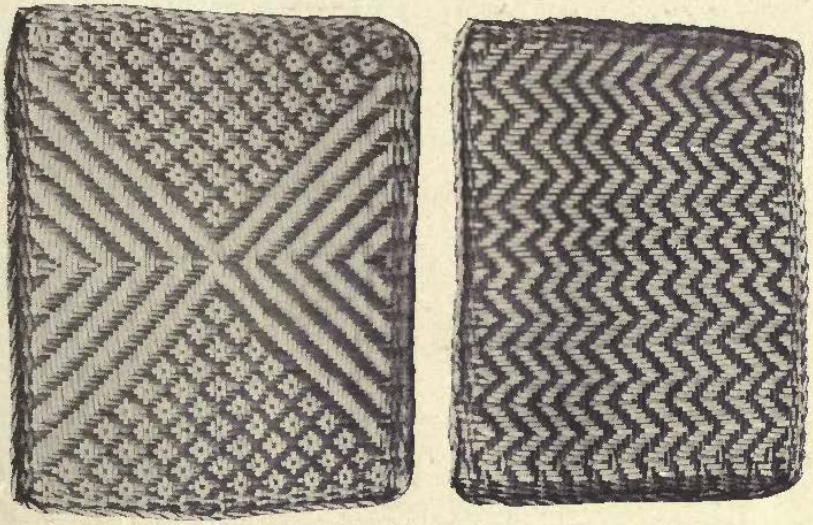
advantage in field trips. It gives a zest and purpose to a ramble to feel there is an object in view.

"On this trip let us imagine ourselves Indian women and Indian children going out to hunt grasses or other material for basket-making. We will do this for several weeks, and then as the result of our explorations we will decide where we, as Indians, should pitch our permanent camp."

Put such a thought as this into the mind of child or adult and it gives added pleasure to outdoor rambling.

Then the incalculable benefit in the necessary stimulation of the powers of observation that will come from such trips should not be overlooked. This, the highest faculty in true education, should ever be kept in exercise. He is a benefactor in the highest, fullest sense who trains another to habits of observation.

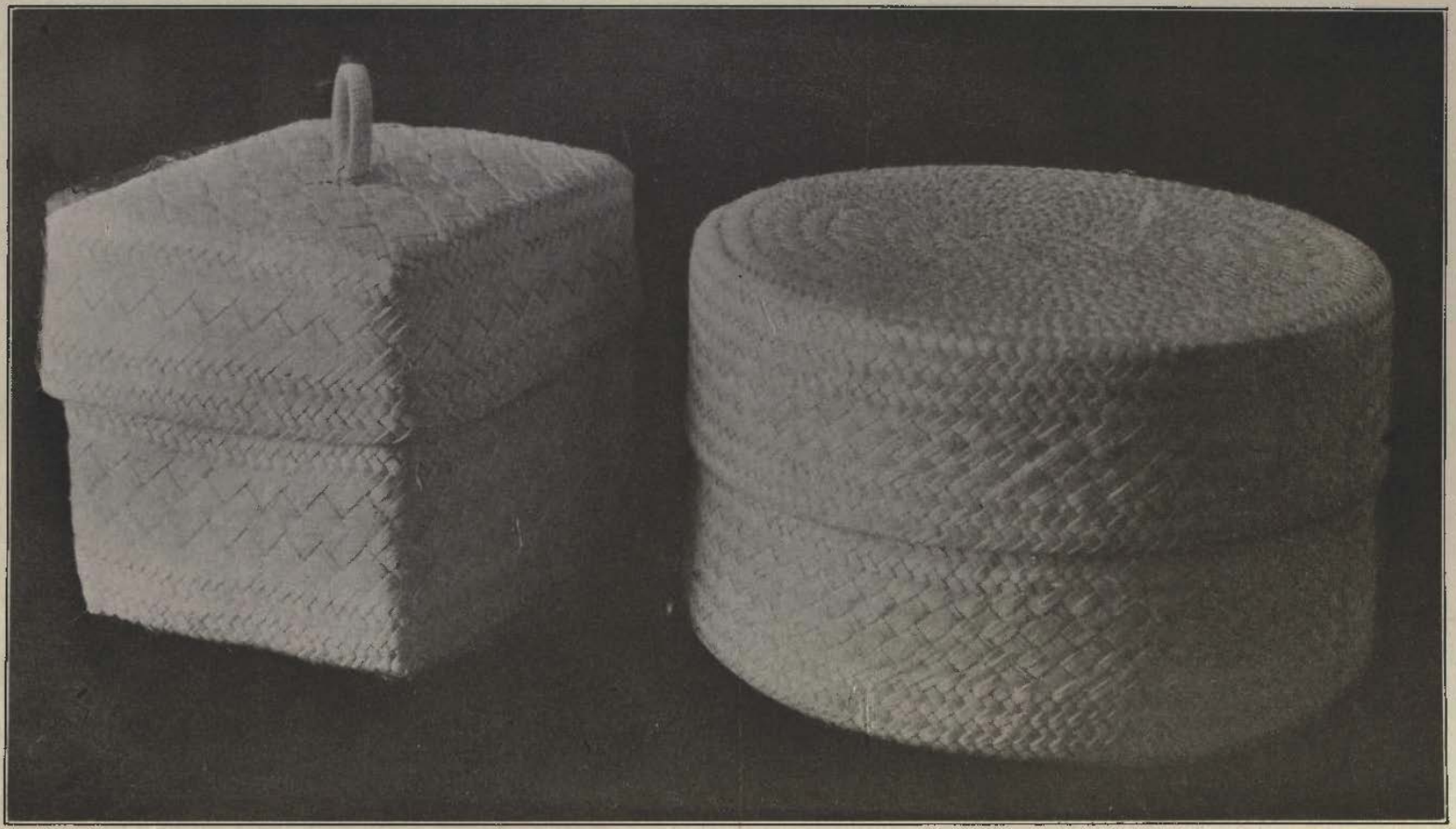
Experimentation follows observation in this field. For, when one thinks that he has found a material that is suitable either for weaver, filling or dye, it must be tested.



FIGS. 10 AND 11. CHETEMACHE MATS.
Courtesy Hyde Exploring Expedition, New York.

Selection of the best next follows, and thus both senses and brain are healthfully exercised and stimulated.

And this is not merely good for a child. Many a nervous, dyspeptic, broken-down adult would find new life and health in doing what I have here suggested. Out of doors! Out of doors! Into God's pure air, sunlight and odors. There is His chemical labratory where health, vigor, power are hourly being manufactured. Get out into the fullness of it. Breathe in it; drink it in; absorb it in. Fill up lungs, blood, nerves and brain with pure life and health, throw physics to the dogs, send melancholia and depression to the devil, defy the demon of dyspepsia and come back into the world of men and women conscious of strength and power to do what you will.



CHAPTER IV.

THE PREPARATION OF MATERIALS.

Personal experimentation should be the keynote in the mind of every adult who seeks to gain the greatest good from basket-making. "I will know for myself! I will experiment and test and find out everything that can be found out as to the resources of my neighborhood that can be utilized in this work." With all our scientific knowledge we cannot improve upon the methods and results of the Indians, except, perhaps, in the matter of speed. Their dyes are unfading; their colors perfectly beautiful, appropriate and harmonious; their material as perfect as it can be made. In "Indian Basketry," pages 72 to 85, I gathered together much information as to materials used by the Indians, and methods of preparation. In that chapter the student will find many suggestions that may aid her in utilizing the material of her own section. One thing, however, she may be sure of, viz., that wherever an Indian has been over the ground, in the work of that Indian will be found the very best basket-making material of that region. The Indian's judgment may be relied upon, even though her methods may be bettered. For her selection is the result, possibly, of centuries of practical experience and therefore, at the outset it will be well to see, if you have any Indian workers in your locality, what they have been in the habit of using in their basketry work. If it be true, as most of us firmly believe, that he is a benefactor who makes two blades of grass grow where but one grew before, it is equally true that he is a benefactor who finds a use for that which has hitherto been deemed useless. To teach others how a useless weed may be converted into a commercial commodity is to create wealth, and among the poor and needy, wealth means added comfort and happiness. By following the suggestions given in this chapter every teacher may enlarge the sphere and scope of her benefactions. The following list makes no pretention to completeness. It is merely suggestive, and to stimulate the weaver to find out what she can use from her own locality. When any new material, not named here, is found I shall be obliged if a sample be sent to me, to Pasadena, California, with its local and Indian name, its habitat, habit or growth, quantity, how prepared and any further particulars that may be of interest.

It must not be supposed that familiarity with and skill in the use of one material can be transferred at will to some other material. Each material demands personal study and use. One who has learned how to use willows cannot immediately work in reed or rattan, and yucca strands need very different handling from squaw grass or pine needles. In this diversity the true student will find pleasure. The overcoming of difficulties exercises the faculty of invention.

Care should be taken, and a caution given to children, to avoid the grasses with saw-toothed or other sharp edges. One may be cut sev-

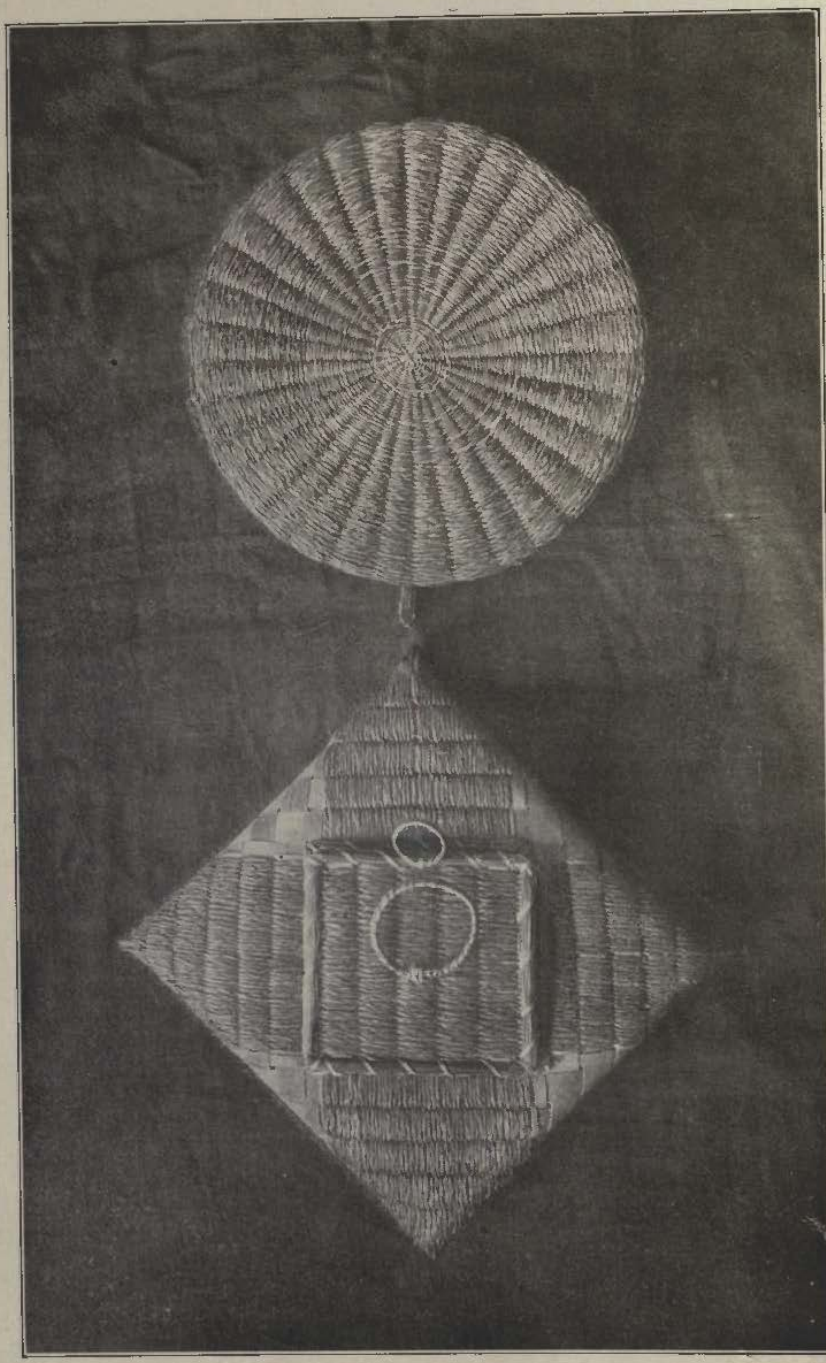


FIG. 13. SPLINT AND SWEET GRASS BASKETS.
Courtesy Hyde Exploring Expedition, New York.

erely if careless in handling such grasses, and there are plenty of other materials without using these that may do injury.

COCKLE-BUR. The much-despised and hated cockle-bur may be used as a stimulant of the child's imagination in the beginning of his work. These burs can be found anywhere, and when the children have gathered them they can be shown in one lesson how that, by sticking them together, a form can be created. Then it is well to leave them to their own imagination, allowing them to create any shape they may desire.

RAFFIA is ideal weaving material for the untrained fingers of beginners or the weak fingers of children. It is soft and flexible and easily handled. As strength and digital dexterity increase stronger materials can be used, especially as they afford so much greater opportunity for the exercise of skill and artistic effort.

Raffia is the native name given to a Madagascar palm of the tribe Lepidocaryeae, a type of the sub-tribe Raphieae. It has a long leaf, over 50 feet in length, and thus the tree is often from 60 to 70 feet high to the tips of the leaves. The material purchased from the seed stores is the epidermis of the leaf stripped on both sides. The leaf itself is very brittle, and would be useless for this work, but the fibre stripped from its outside is tough and pliable. It is tied in long hanks, and was originally shipped to France and England to be used mainly as florists' twine, for tying up fruit trees and other gardening purposes. With their native economy the French, and then the Germans, began to use it in connection with cane and reed in the manufacture of small baskets, and when the revival of the art of basketry reached England, the workers there at once perceived its adaptability and seized upon it as an excellent and ideal weaving material for beginners. Its long strands are from one and a half to two feet in length, and it is thus much preferable to the shorter splints of the Indian. For, to the teacher who has a large number of children to direct, it is a comparatively easy task to see that each pupil has her needlefull of raffia, whereas in the use of the shorter splints of the Indian much time would be occupied and patience exhausted in rethreading or reinserting these short and soon used up lengths.

RATTAN is one of the most popular of basket-making materials because it is long, light, tough, flexible and fissile. The recent awakening to the importance of basketry has brought rattan into marked prominence. It is a palm of the genus Calamus, mainly found in the East Indies. Sometimes it attains the astounding length of 500 feet, climbing the tallest trees, falling in festoons, and again ascending, and seldom exceeding an inch in thickness. The rattan of China and Japan is of the genus Raphis, and is known as ground-rattan. It grows erect in dense tufts.

Prepared for commerce rattan is stripped of its leaves and bark, and is put up into bundles of round cane or flat strips, numbered from 1 to 15. No. 1, being the finest, is the most expensive. Nos. 2, 3, and 4 are common sizes, Nos. 5 and 6 being used for the coarser work.

The BAMBOO holds an important place in the list of basket-making materials. It grows in all warm countries, though the Bambusa, the chief type, is found only in Southern and Eastern Asia. It is an arborescent grass, growing to the height of 20, 50 and even 120

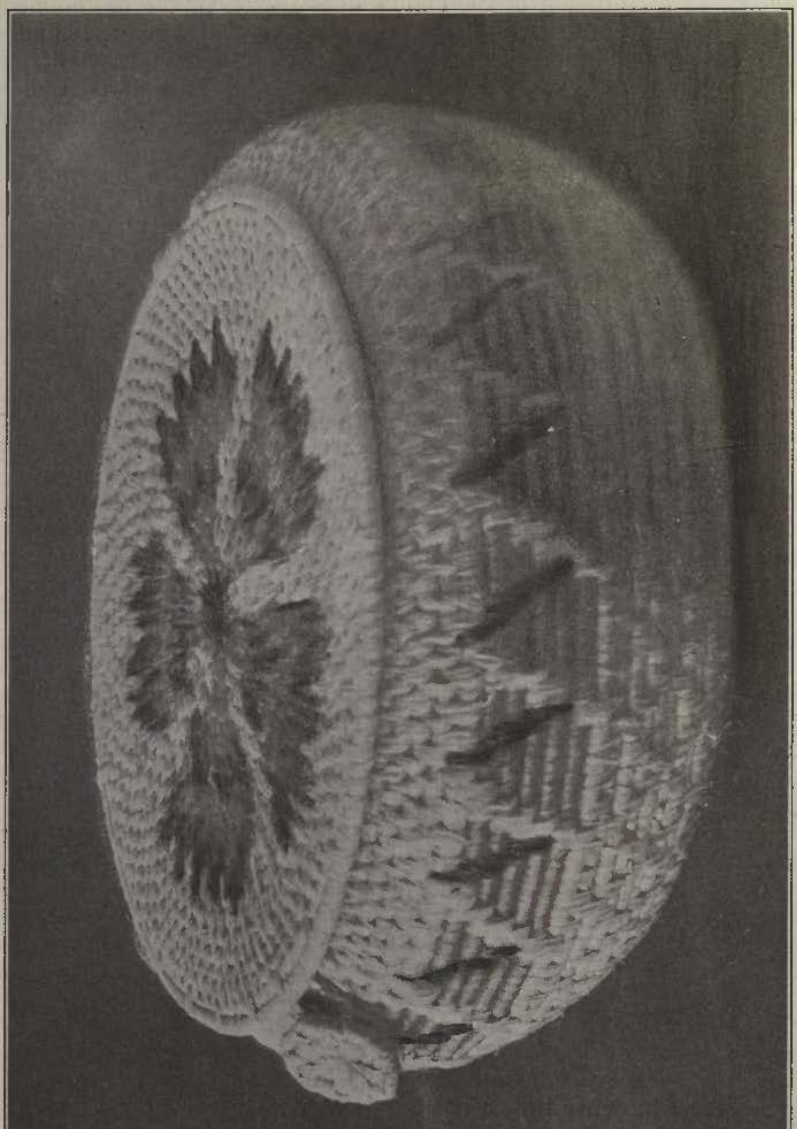


FIG. 14. PICOTIE PINK BASKET, DESIGNED AND MADE BY MARGARET MILLER, DEERFIELD, MASS.

fect, with a diameter, in the larger species, of from 4 to 8 inches. Both leaves and stems are used in basketry work, though rattan is more common in America for general purposes.

The PALM family affords much material for basketry, as has already been shown, one species alone, the Bamboo-palm, Raffia vinifera, giving the raffia now so largely used.

The leaves of the palmetto (Sabal palmetto), a tree growing from 20 to 35 feet high, and of the dwarf palmetto (S. adansoni), are peeled and make excellent material for wrapping splints, and also for splints for the mat weave work herein described.

Good splints are made from the BUCK-EYE (Aesculus), several kinds of which are well adapted to this purpose, the wood being white, soft, spongy and easily worked.

The wood splints of commerce are purchased in long, wide strips. To prepare these for basket work two cutting implements are used, elsewhere pictured. The broad strip is placed inside the grooves of the "slicer," which has three or more tiny but sharp knives protruding from its base. As the splint is drawn through the cutter, it is cut into the desired width, the knives being set by gauge and screw.

Where no cutter is to be had the strips may be made with scissors, but this is a slow and laborious task.

The BULLRUSH (Scirpus) of different species may be largely used in basketry. The special kind (S. lacustris), whose tall, smooth, bluish-green, round stems are seen projecting above the water in lakes, ponds, pools and rivers, dries well and is excellent for many purposes. In California the Scirpus Tatora is called tule, and the root of this has a cuticle of a rich, brown color, which is used by the Cahuilla Indians as wrapping splint for their coiled ware.

A grass that can be used is SENECA-GRASS, sometimes also known as holy-grass and vanilla-grass.

The ingenious teacher will find many ways of using CORN HUSKS, even as the Indians do, though, of course, nothing durable can be expected from such perishable material.

SWEET GRASS is largely used in some parts of the United States and Canada for the making of simple and pretty baskets. It is properly Zostera, a type of a tribe of aquatic plants which grow immersed in shallow bogs and other waters. A chapter is devoted to sweet grass weaving.

In the South there grows in vast quantities the LONG MOSS, (Tillandsia usneoides) whose dense pendulous tufts drape the trees. This moss is largely used for the stuffing of mattresses, and can be used for filling for the inner coil of baskets.

BROOM CORN (Sorghum Vulgare) also makes excellent filling for the inner coil, and is much cleaner and better than the moss.

LONG PINE NEEDLES. From Virginia to Texas there grows along the coast a pine which has spiculae or needles from ten to twelve inches in length. These needles dry easily and are well adapted either for material for the inner coil of coiled baskets, or as unwrapped coils sewed together as illustrated elsewhere, and even for weavers.

Pine needles, longer or shorter, are found throughout the whole country and children should be encouraged to do the best they can with such as they can find. The Southern variety referred to above

FIG. 15. SPLINT BASKETS.
Courtesy Hyde Exploring Expedition, New York.

FIG. 16. REED BASKETS MADE AT DEERFIELD, MASS.

is the long-leafed pine (pinus palustris), and is generally known as the Georgia pine.

Arrangements have been made for the gathering of abundant quantities of these long pine needles and a sample bunch will be sent by mail free on receipt of twenty-five cents.

The MARTYNIA is a plant capable of cultivation in any part of the country. A small package of seeds can be purchased for twenty-five cents, which will grow enough for a small class. An effort is being made by The Basket Fraternity to secure these seeds for sale. It must be gathered when the pod is at its blackest. Gathered too soon it is greenish; too late, the black is rusty and poor. When

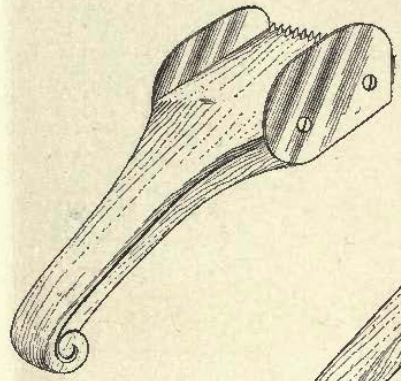


FIG. 17. WEAVER SPLINT CUTTER.

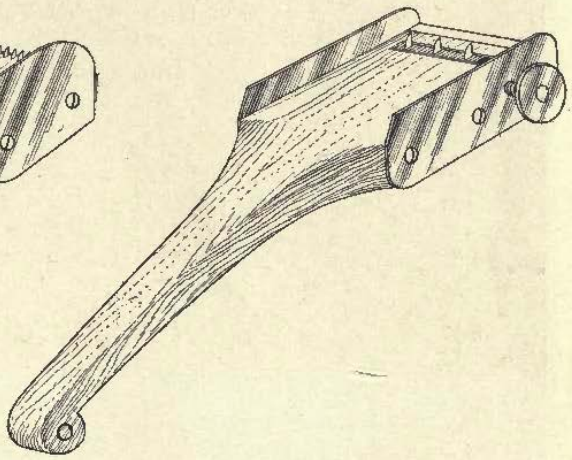


FIG. 18. FOUNDATION SPLINT CUTTER.

picked at the right time the black is perfect, and all the designs of the Pima, Apache and Havasupai baskets are worked out with it.

In Australia and New Zealand grows the pimelea, a slender branching shrub with tough, stringy bark. This bark is prepared and the fibre used for textile purposes.

All lovers of the fine basketry of Northern California know the rich black wrapping splint of the twined basketry. This is the stem of the Adiantum pedatum, the MAIDEN HAIR FERN.

There are some pliant species of SMILAX (S. Pseudo—China), known as bull-brier, which are used in basket-making.

The fibre of the cocoanut, called COIR, could be so prepared as to make a fairly good wrapping splint for coiled work.

The SILK GRASS of British Honduras, which is the same as the pita of Central America, is a valuable fiber produced principally from the Bromelia Sylvestris, a kind of wild pineapple, though the name pita is given indiscriminately to the fibre obtained from the

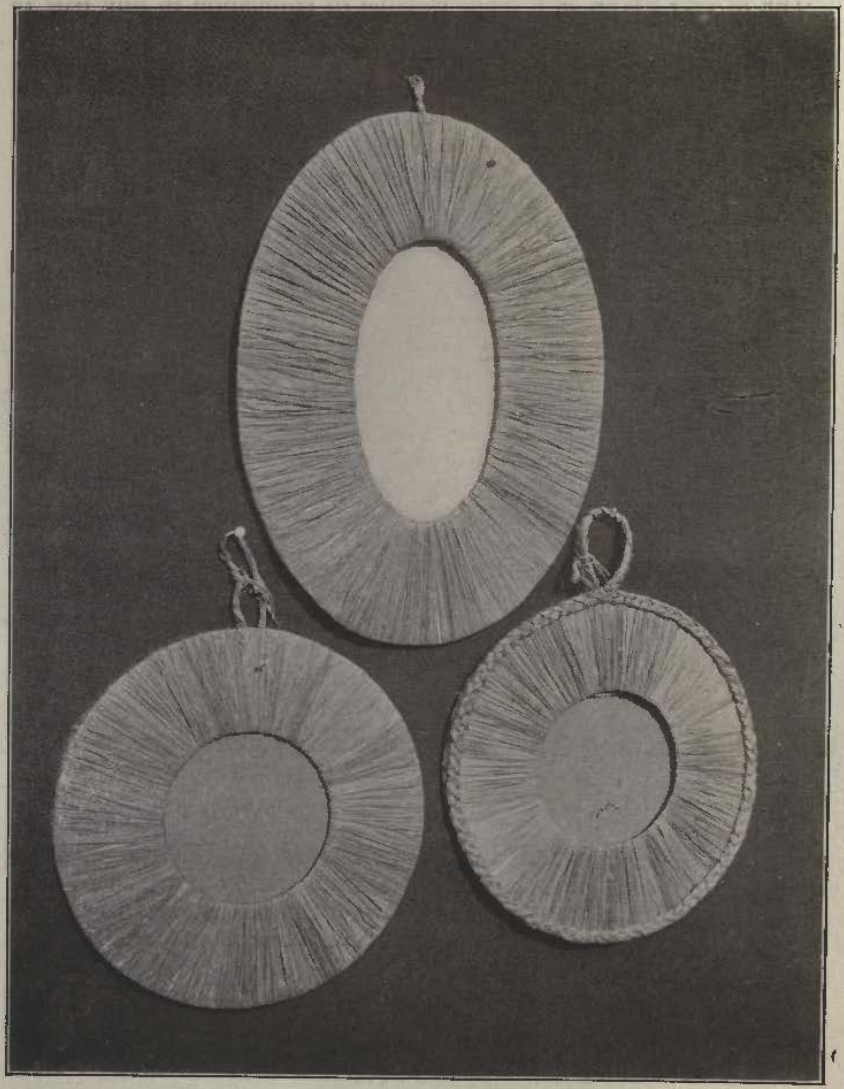


FIG. 25. RAFFIA BOUND PICTURE FRAMES.
Work of Students, Teachers' College, New York.

various species of Agave. This is also known as henequen, or sisal hemp, and is largely used for making ship's cables, as it resists dampness better than the simple hemp.

There are two or three species of WILLOW that are largely cultivated for basket-making. In Europe the Almond-leafed willow (Salix Amygdalina) and especially the Golden Willow or osier (S. Vitellina) are used for this purpose. Most of the coarse basketry of England is made from this latter species, and the finer work is made by splitting the willow into splints and using them for wrapping, as do the California and other Indians.

Somehow the words "Sisal Willow" have come into use in basketry. I am free to confess I do not know what the Sisal Willow

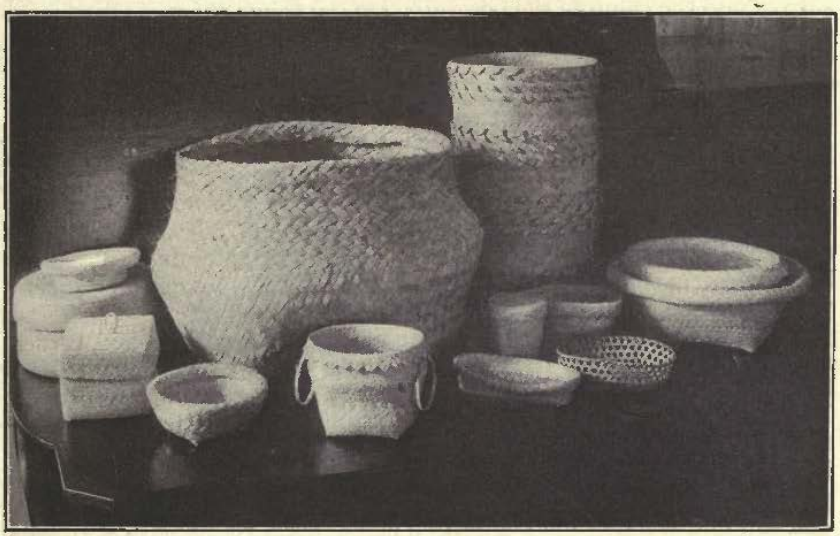


FIG. 160. DEERFIELD STRAW BASKETS.

is and shall be glad to be enlightened. The Century Dictionary gives Sisal grass and Sisal hemp, which is the fibre of the agave ixtli or henequen, but I can find no reference to Sisal Willow.

Mat splints, especially when made of palmetto or similar material, are made more pliable by slight soaking and then running between the thumb and dull edge of shears.

Other materials will be found referred to in later pages showing the infinite variety the ingenious teacher may utilize.

In their preparation most of the common grasses will dry if put in a warm but shady place, and kept turned over every day. A little experience will soon demonstrate the best method of "curing."

CHAPTER V.

DYES: HOW TO MAKE AND USE THEM.

At the outset let it be understood fully that this is not presented as anything more than a chapter of suggestion and hints. Explicit directions in so subtle and elusive a matter as dyeing is not to be expected in a book of this character.

In the first place, second, third and every other place, fix firmly and forever in your minds that aniline dyes are "anathema" to all true basketry lovers. They are the "accursed things" which bring sorrow into the camp of the faithful. Do not touch them. Discourage their use in others.

Vegetable dyes are softer in tone, more harmonious, more permanent, and better in accord with basketry work. The loud trumpet notes of aniline color do not suit such soft and flexible work as basketry. Never until the white man of no artistic taste perverted and led astray the Indian with aniline dyes did he make mistakes in color. Hence to get the true conception of color one has but to study the old baskets. And who that has done this has not felt the charm and delight of sweet, tender, exquisite melodies; of soft, delicate, restful harmonies in these masterpieces—nay mistresspieces—of ancient work?

In this chapter I desire to stimulate each thoughtful and earnest student to the endeavor to reach what these wild weavers reached. We know somewhat of their methods, and they cannot be improved upon. In "Indian Basketry" I have said something about them, and the chapter on colors is well worth another reading in connection with these hints. Also, if you have in some long forgotten closet a copy of your great-grandmother's old recipe book, get it out, and, ten to one you will find wonderfully suggestive helps there, reminding you of the days when your ancestors spent many hours over the dye pot or tub. To learn to dye well is a liberal education in many things. So begin with determination and courage. Remember that experience will widen your horizon and enlarge your capacities. Thus a valuable and interesting discovery may be made. Miss White tells of "one basket-maker who found in the purple iris a dye almost as deep as its own blossoms. The faded flowers are full of the purple liquid, and, when they are rubbed on rattan, color it a beautiful shade which is quite as fast as most dyes."

Hence, experiment in every way. If you are preparing a red, and happen to have some other dye at hand, mix in a little of it, and test the result. Just as an artist experiments in color on his palette board and thus finds what he wants, so may you.

As a rule all materials and dyes need a mordant. This is to "fix" the dye. In "Indian Basketry" I tell of some Indian mordants. Alum is a good ordinary mordant and can be had, cheaply, anywhere. As a general principle, however, chemistry teaches that where you have an acid dye it is well to have an alkali mordant, and when an alkali dye an acid mordant. Experiment will soon teach the value of this.

Miss White suggests the use of a solution of three ounces of alum dissolved in a quart of water. Miss Hyde prefers much less, preferably about four ounces to two gallons of water.

When the alum is well dissolved place the liquid in a small tub and soak the material to be dyed in it for fully two hours. This allows the fibre of the raffia or rattan to take up the mordant, and thus prepares for the permanent fixing of the dye—a thing much to be desired.

In the making of dye here are a few hints as to material. YELLOW.—Gather St. John's wort (hypiricum perforatum), the stems, leaves and flowers, which can be found growing everywhere on the roadside. This gives a light yellow that is very pleasing.

Saffron can be bought from the druggists, and is easy to handle. This gives a bright yellow.

Onion skins give a dull yellow that is very satisfactory.

GREEN.—Indigo, to be purchased of any druggist, gives the color for blue, but it must be confessed it is difficult to handle without experience. Miss Hyde found Chase's Recipe Book give her help. Learners will find that indigo will not dissolve in water. Sulphuric acid will dissolve it, but the acid will rot the material to be dyed. So before the materials are immersed, the acid must be neutralized by the addition of soda. The sulphuric acid is poured on the indigo, drop by drop, and stirred vigorously, causing the liquid to foam in an alarming manner. There is nothing to fear, however. As soon as the indigo is dissolved fully, add water and put in soda until it stops foaming. Be sure to keep your hands out of this mixture. Use a stick to stir it with. It is well to make plenty of this mixture, which keep stirring often. This allows the soda to completely neutralize the sulphuric acid, and the dye can be used with safety, diluting with water when used.

RED.—Cochineal, though animal, is suggested for a dark, deep red. Combined with cream of tartar it gives a bright red.

Madder gives a dull red. This can be bought from the druggists in powder form; in the South it can be found growing in the fields, and the root is the part to use.

Cranberries give a dull red, and beets a color similar but more satisfactory. The poke berry gives a purple red. You will not care to handle the poke berries as they stain the hands.

ORANGE.—Dragon's blood gives a pleasing orange. The powder can be bought from any druggist. Do not buy it in stick form, as water will not readily dissolve the stick, and alcohol must be used for the purpose. The powder is easier to handle.

The powder of Blood Root gives a deep yellow.

BROWN and PURPLE.—Logwood extract gives a fine brown, and combined with ammonia a good purple.

Butternut bark, though not as strong as logwood gives satisfactory results if an extra quantity is used. Walnut and hickory nut shells can also be used with good results. The bark of the maple and pine both give nice shades of brown, and one will find great pleasure in experimenting with bark from different trees.

TAN.—Sumac leaves and stems give a good tan, while the fruit gives a reddish or what might better be termed a light or pink tan. But this dye is never strong even though a large quantity of the leaves are used.

TIME TO COLLECT MATERIALS.—Experience has demonstrated that the best time to collect these materials is in October or November, when the seeds and fruit are ripe and the sap is well down in the trunks of the trees. Even in this work one is liable to stumble upon many interesting facts. For instance, one teacher had her scholars gather walnut shucks for dyeing purposes, and they secured a delicious shade of green. Three or four weeks later they again wished some green dye, and went and gathered more walnut shucks. This time their green dye came out "brown," and the disappointed children were unable at first to comprehend the reason for the change. It does not need much suggesting to show how that to an intelligent teacher this practically prepared the hearts and minds of her pupils for a valuable lesson in natural history. The green coloring matter had gone; new matter or changed matter was in its place. Thus observation and interest are stimulated—the first elements of all true education.

TO MAKE THE DYES.—For a dye pot a good enamel kettle is as serviceable as anything. All the materials are to be boiled. A general proportion to be observed is two ounces to one gallon of water. This gives a fairly strong dye. It can be diluted, if necessary, and if found not strong enough can either be boiled down or more material used.

In using beets, put in about five or six large beets to a gallon of water. If these do not produce the desired color, put in more.

Cranberries, use about one pound to a gallon of water.

Butternut bark, walnut shucks, sumac, poke berries, onion skins, etc., all that can be held in both hands; a little more will do no harm.

All of the above will generally give their color with a half hour's good boiling. On the other hand, cochineal needs fully two hours to produce good results.

TO DYE THE MATERIAL.—First mordant as before described. Be sure and strain the dye, as if there is any sediment it is liable to arrest the work of the dye and give irregular color effects.

In every case the dye must be boiling when the material is immersed. Let it remain in the liquid from 15 to 20 minutes. If this is not enough (as experience will soon demonstrate), let it remain longer. Keep turning the material over and over, always using a wooden stick for the purpose, so that the color evenly reaches all the parts.

The following is from the pen of Miss Margaret C. Whiting, of the Pocumtuck Basket Society of Deerfield, Mass., a society whose work in fine basketry other pages of this book will well testify to. In an early bulletin of the Basket Fraternity I hope to publish a full and detailed account of Deerfield and its work.

"Basket workers, who work in raffia, have only lately begun to realize the necessity of natural dyes in order to produce good and lasting color combinations in their designs, and it is a fundamental need, and no craftsman will continue long to rest satisfied with seeing his design developed in the loud and vulgar colors that raffia dyed in chemical or aniline dyes produce. In itself raffia is a material that is capable of taking on soft and harmonious colors, or of becoming an offence to the eye. It is fortunate that many individual basket makers, or groups of workers, are following the exampe of Deerfield, in either doing their own dyeing in indigo, fustic, madder and copperas, or employing someone who has skill and time to do it for them. By

these means the old-fashioned processes of hand-dyeing are being revived, and far-reaching effects may quite reasonably be hoped for from the individual dyers who are thus being encouraged. Such an one is Mrs. Miller, of Brooklyn, whose "Colonial Dyes" of over a dozen shades and tones of reds, browns, yellows, greens and blues done in small vats prepared by old rules of tried permanence, are so pleasing to the eye, tried by the garish modern colors that it is impossible to believe the future will consent to accept. Quite recently a modest sale, for a charity, of baskets made by a group of amateur but skillful basket-makers in a surburban town belonging to Greater New York, from Mrs. Miller's colors proved the charm possible to

FIG. 135. SIMPLE WEB BASKETS OF RATTAN.
Work of Students, Teachers' College, New York.

obtain from the color harmonies of vegetable dyes. The basket with a holly design, that which was decorated with a stiff row of tulips, another that bore trees, whose maker whimsically proclaimed to grow in "the vale of cedars," and still another developed in orange and black with a barbaric design in white beads, all show the inspiration harmonious colors give to the designer, how their mere possession gives suggestion of patterns and combinations to the eye of a skillful basket-maker, which her own desire to produce turns to admirable account. The much lamented decay of good design and of excellence in ornamental work has been largely helped by the manufactured dyes; how great an influence toward the tasteless and tawdry has been wrought by the invention of aniline colors, who can say?"

CHAPTER VI.

TOOLS AND TERMS USED.

The student should be provided with the following tools: A needle (about a No. 19 tapestry needle is good to begin with); strong scissors; an awl about four inches long; a small hammer; a yard measure and foot rule; a sharp knife; a pair of small, flat pliers or pincers; a narrow piece of heavy, flat iron or steel that can be used as a hammer between the spokes of a basket. This should be about five or six inches long and two inches broad, indeed an old rasp file will answer the purpose very well. Rubber thimble and finger caps are useful, when these members are tender.

Cutters for preparing wood splints are used by the Eastern Indians. Miss Marie Toxuse, employed by the Hyde Exploring Expe-

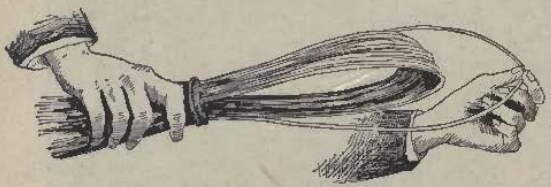


FIG. 19. A SPLINT.

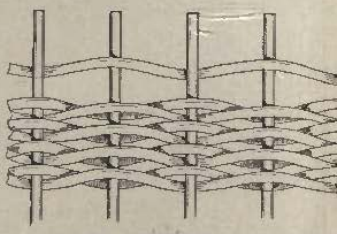


FIG 20. SINGLE WEAVING

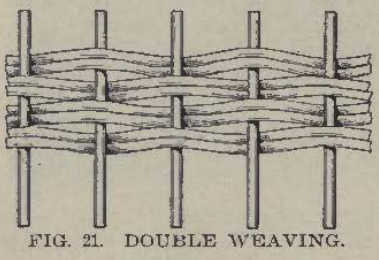


FIG. 21. DOUBLE WEAVING.

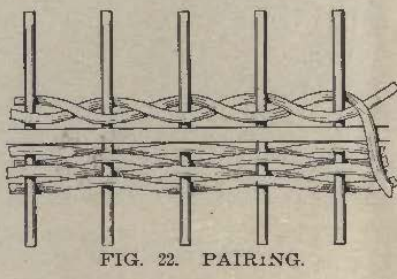


FIG. 22. PAIRING.

dition, 26 West 23rd street, New York, kindly permitted me to have the accompanying engravings made from her two cutters. Fig. 18 is adjustable, and can be set by means of the thumb screw and the brass fillers to cut the splints from an eighth of an inch to an inch in width.

Fig. 17 consists of a number of knives set at the proper distance apart for the making of splints for weavers.

In both these cutters the broad splint is inserted, pressed upon the knives, and then rapidly pulled. With a pair of scissors the resulting splints are cut to the required length.

A splint, or weaver, or strand is the name given to the strip or

piece of material used for wrapping. The fingers in Fig. 19 hold a splint.

The warp splints are the ribs, the bones, the framework, the spokes, the foundation upon which the basket is built up.

The woof splints are the weavers which are wrapped, or twined, or worked in various ways in and out of the warp splints.

SINGLE WEAVING.—This is shown in Fig. 20. The weaver is placed behind one spoke or foundation rod, and before the next, thus alternating. It is to pack tightly together this kind of weaving that the flat piece of iron referred to in the list of tools is so useful.

DOUBLE WEAVING.—This is where two weavers are used instead of one, see Fig. 21.

PAIRING.—This is where two weavers are used, but one is placed before, the other behind the same spoke, as in Fig. 22. Then as the

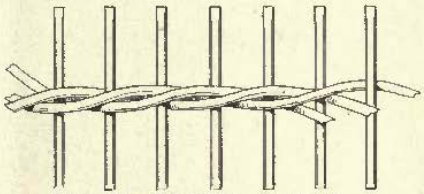


FIG. 23. TRIPLE WEAVE.

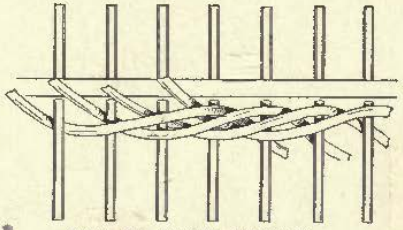


FIG. 24. ROPE TWIST.

weavers are taken on to the next spoke twist them so that the lower weaver takes the place of the upper.

TRIPLE TWIST.—This is clearly shown in Fig. 23. Three weavers are placed behind three consecutive spokes, then each weaver is brought in succession before two spokes and behind one, being laid at the same time on the top of the weavers that preceded it. This weave is used where a break or dividing line in a basket is desired, either for beauty or strength. It is also used as a border finishing weave.

ROPE TWIST.—This is a variation of the triple weave, though four or more weavers may be used, see Fig. 24. For starting, four weavers are placed behind four consecutive spokes, and if one or more weavers have already been used, they must be included in the four to make up this twist. Each in its transit to the back of the fourth spoke must be laid on the top of the other three weavers.

CHAPTER VII.

HOW TO BEGIN.

One of the first and most important results to be attained is the familiarizing the student (be he child or adult) with the materials to be used. Hence the wisdom of following out all the suggestions here given, even though the immediate results are not the ones you individually are seeking. The greater the variety of materials used, the more readily does one see the possibilities and limitations of each.

Miss Hyde suggests: "One may combine bristol board with

FIG. 26. RAFFIA WRAPPED ARTICLES.
Work of Students, Teachers' College, New York.

raffia to advantage in teaching little children—illustrating the use of two materials of different degrees of flexibility." In all the following exercises it is well to dampen the raffia several hours before using.

PICTURE FRAMES.—Cut a 6-inch square from bristol board and from this cut a circle, the radius being three inches. Cut an inner

circle with radius 1 1-4 inches, giving a diameter of 2 1-2 inches. This opening allows for a small picture. Then wrap the board with raffia in its native color, or dyed, as preferred. A simple loop may be made of the raffia with which to hang up the frame.

In the making of these picture frames cultivate a sense of proportion. The frame must not be too large for the picture it is to hold; nor too small.

Then, too, let the child feel that this frame is to enshrine a picture that means something to him. It is not simply a frame for any kind

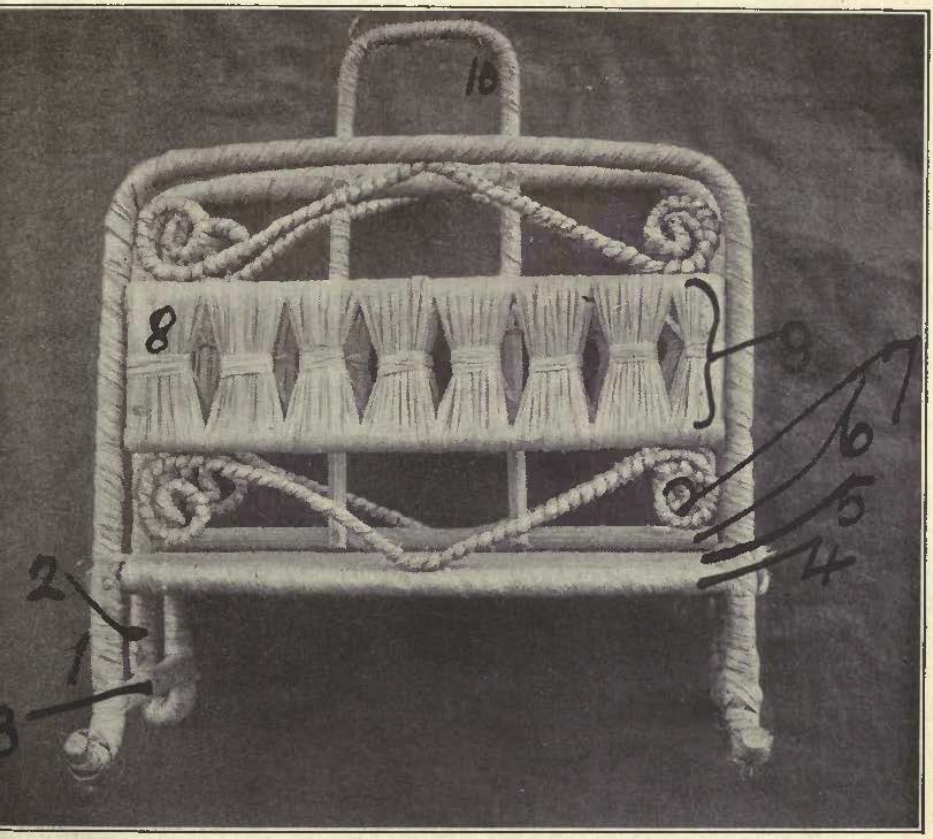
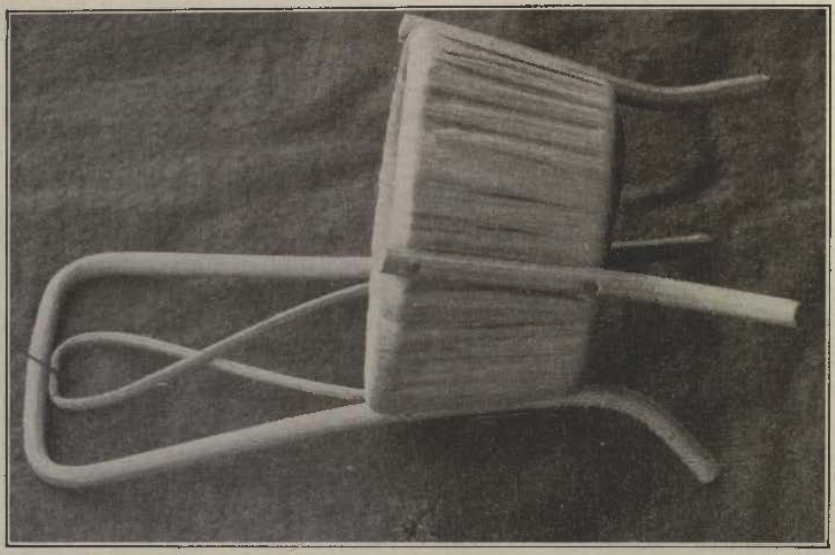
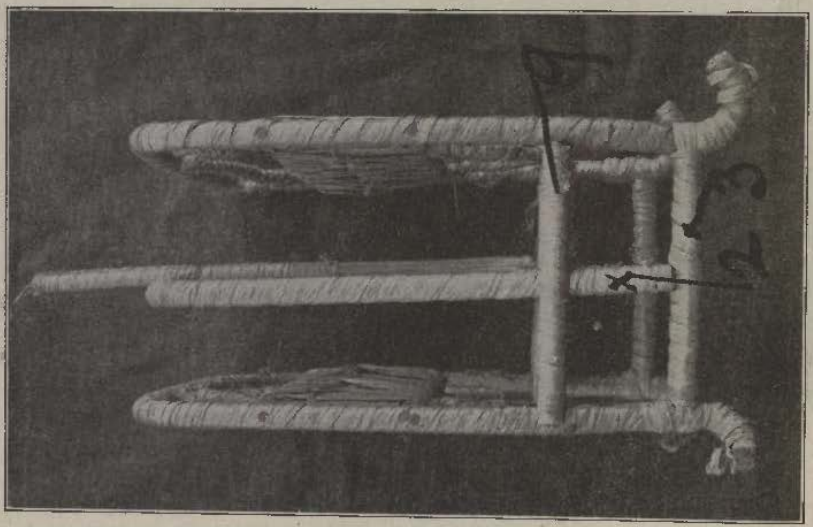


FIG. 28. MAGAZINE HOLDER OF WRAPPED RAFFIA.

of a picture, or merely "a frame anyhow," but it is a frame especially made for a picture of papa or mamma, or the baby, or some beloved friend or scene. Thus the heart of the child, as well as its mind and fingers are engaged in the work. This is the prime element in all work we designate "artistic."

Other interesting possibilities in this use of materials are suggested in Fig. 26. Here are a book mark, a napkin-ring, and a toy umbrella, all made of wrapped raffia. For the book-mark any kind of splint may





be used. Then raffia is wrapped from one spoke to another, as clearly shown in the engraving. The napkin-ring is made by wrapping the raffia around a splint or card-board base, circled into ring form, and then edged with plaited raffia, sewed on. For the umbrella take a piece of No. 4 rattan. Glue a piece of cork upon one end. Into this make small holes and glue therein seven lengths of No. 1 or No. 2 rattan. Then begin to wrap with raffia, giving one twist around each spoke and going on to the next one. This mode of wrapped weaving was long ago used by the Mohave Indians in the making of their carrying baskets, as shown in Indian Basketry, page 160, and later in the chapter on Indian Stitches.

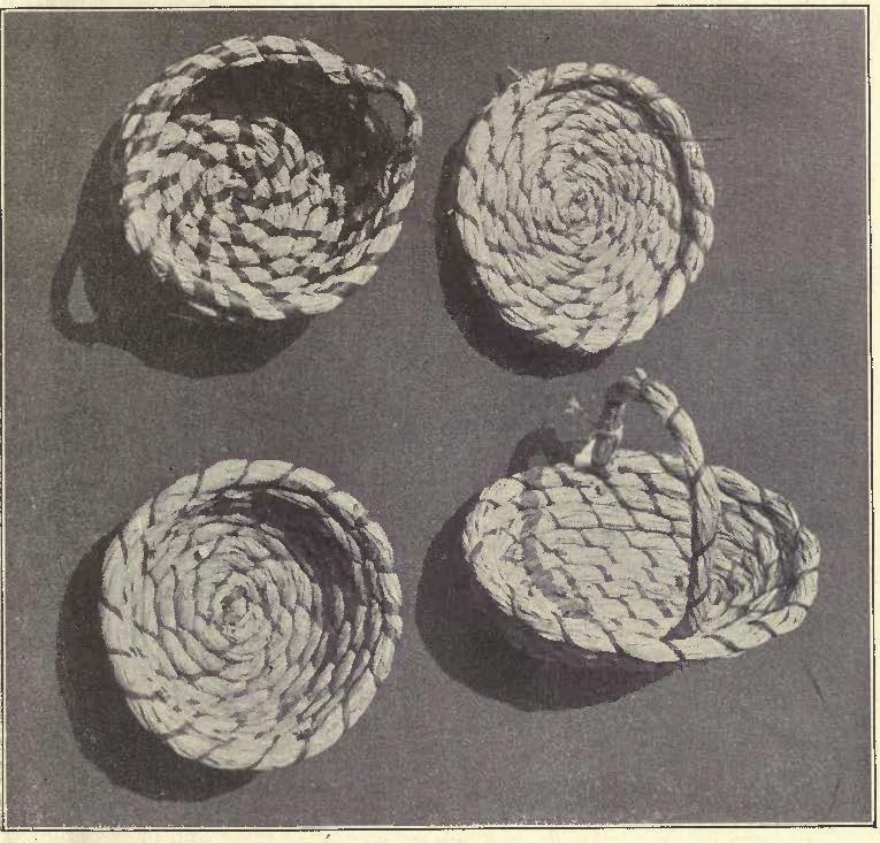


FIG. 30. SIMPLE COILED BASKETS.
Work of Students, Teachers' College, New York.

A SIMPLE BASKET FOR CHILDREN.—The coiling of natural colored raffia and wrapping with a strand of dyed material is an easy method for children. Take a sufficient number of strands of raffia to make 1-4 inch coil and wrap with a strand of colored raffia leaving distances of 1-2 inch between wraps. Coil and sew back and forth holding the coil to the left, and the stitches should not be noticed. To finish let the coil gradually diminish.

CHAPTER VIII.

THE MAT WEAVE.

While mat weaving uses the warp and woof in exactly the same manner as they are used in what I have termed the web weaving, the material is so different in character, and needs such different handling, that it is deemed wise to differentiate and give two separate sets of lessons in their use. The earliest stages of this form of weaving all kindergarten teachers are more or less familiar with.

MATERIALS REQUIRED.—A number of splints of equal width of paper, wood (such as ash, oak, etc.,) palmetto, etc. A bucket or bowl of water, knife, scissors, awl or piercer.

CHECKERBOARD.—Take a number of splints of equal length and width. Place ten or a dozen side by side. This makes the warp.

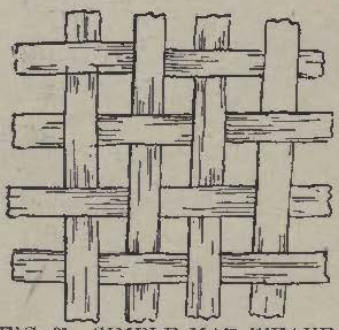


FIG. 31. SIMPLE MAT WEAVE, OPEN.

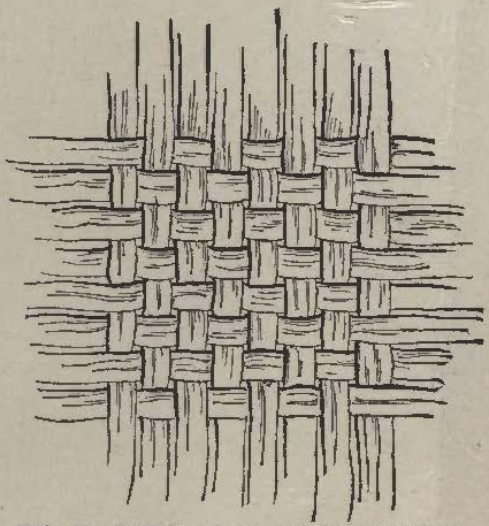


FIG. 32. SIMPLE MAT WEAVE, CLOSED.

Then take same number and weave them, one at a time, over and under the warp at right angles. This simple checkerwork is the basis for good work later on.

Figs. 31 and 32 clearly show the simplest forms of this kind of work. After a little practice in this with coarse splints, let the pupil undertake the making of a table mat of any suitable material similar to Fig. 33. It will be seen that the splints are fine. When it is the size desired, sew the edges tight with white thread, and then unravel or split the splints as shown in the illustration.

It is well to gain accuracy and speed in the manipulation of mat splints, and good exercise will be had by imitating Figs. 34, 35, 36

with weavers of two colors. These weaves can be utilized in the making of many beautiful baskets later on.

MAT FOUNDATION WORK.—Fold all the splints lengthwise. Take the two long ones, place them side by side, right and left, with ends reversed. (See Fig. 37.) Take a short splint, open it and fold around long splint to the right, thrusting splints through the long splint to the left. Pull tight. The next short splint fold around long

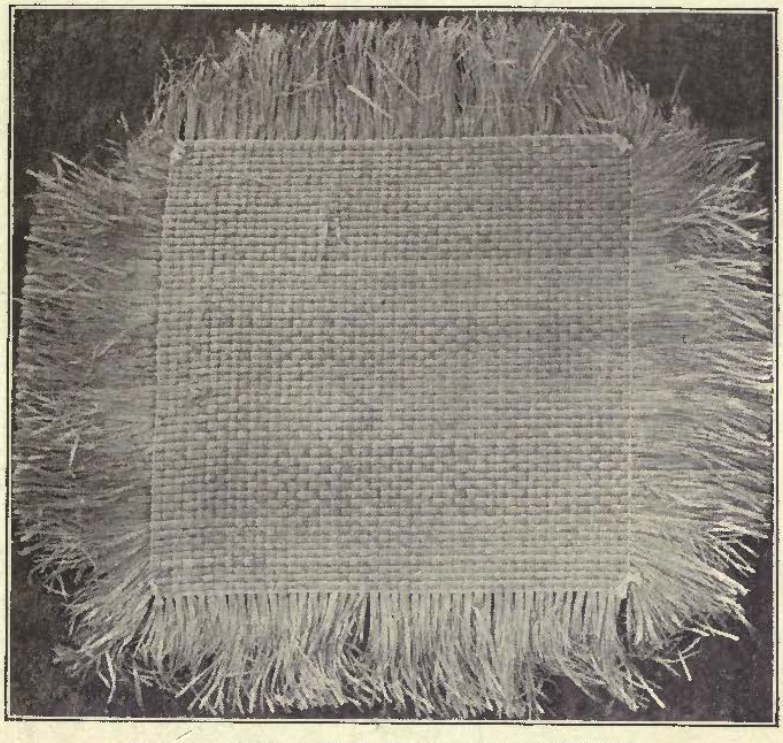


FIG 33. TABLE MAT. SIMPLE MAT WEAVE.

splint to left and through long splint to right. So on alternating, with as many splints as desired. Pull tight.

FOLDING EXERCISE.—The accordeon fold. Take two weavers of equal width, holding them with ends at right angles, or fold one long splint as shown in A, Fig. 38. Fold the perpendicular splint up over the horizontal one, then the horizontal over the perpendicular, retaining them at right angles. Back and forth the folds then go (See C) in the following order: down, from left to right; up, from right to left; and so on, taking care that each fold is absolutely even. The result is the accordeon fold (B, Fig. 38.)

In Figs. 10, 11, 39 and 40 are seen four beautiful specimens of

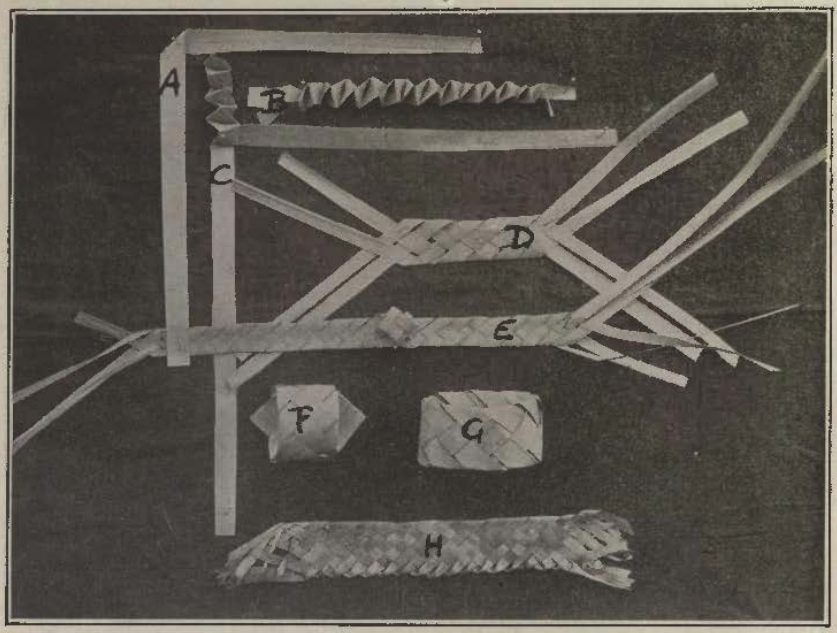
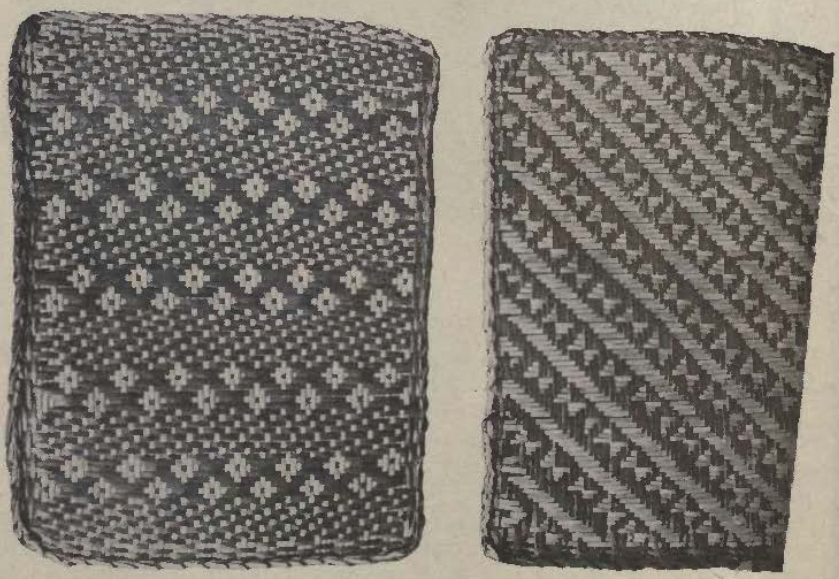


FIG. 38. ACCORDEON PLAIT, DIAGONAL MAT WEAVE, ETC.



FIGS. 39 AND 40. CHETEMACHE MATS.
Courtesy Hyde Exploring Expedition, New York.

Chetemache weave. This tribe of Indians lives on Avery Island, La., and makes beautiful baskets of a variety of shapes, using splints of palmetto.

Their dyes are evidently vegetable and the exquisite color effects produced are worthy of imitation. The colors are a dull Indian red

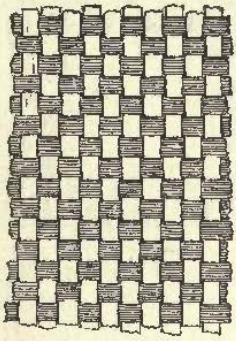


FIG. 34. PATTERN PRODUCED BY INTERLACING STRANDS OF DIFFERENT COLORS.

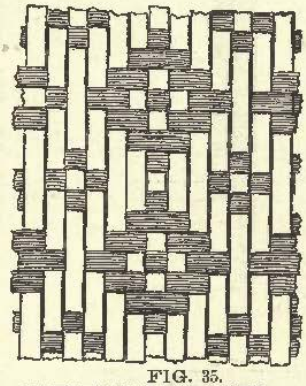


FIG. 35. PATTERN PRODUCED BY INTERLACING STRANDS OF DIFFERENT COLORS.

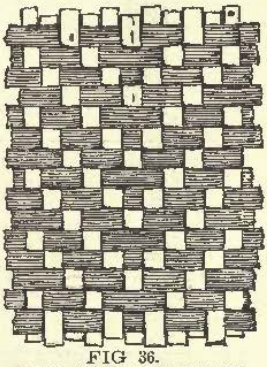


FIG 36. ISOLATED FIGURES PRODUCED BY MODIFYING ORDER OF INTERSECTION.

and black, with the natural greenish-gray of the palmetto. In these mats, the designs are worked out with different colors. The design is easily followed and the learner will find it excellent practice to endeavor to imitate, and later on, conjure up designs from her own imagination. The binding is simple. A flat splint is laid lengthwise

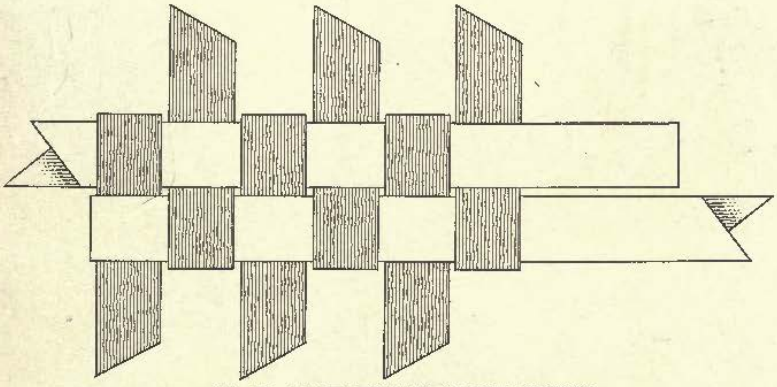


FIG. 37. MAT FOUNDATION WORK.

on the upper edge of the mat, and then sewed on with a fine weaver as seen in the illustration.

DIAGONAL MAT WEAVE.—Take four long splints. Lay two horizontally and two vertically, under and over as if going to make ordinary square mat weave, holding in left hand. Take top splint, oblique or diagonal, fold backwards, bringing edge parallel with the right edge of the perpendicular splint. Change work to right hand,

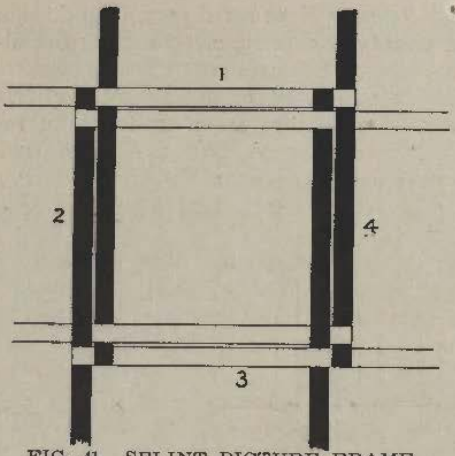


FIG. 41. SPLINT PICTURE FRAME FOUNDATION.

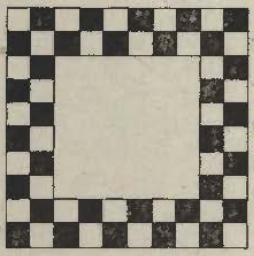


FIG. 42. SPLINT PICTURE FRAME.

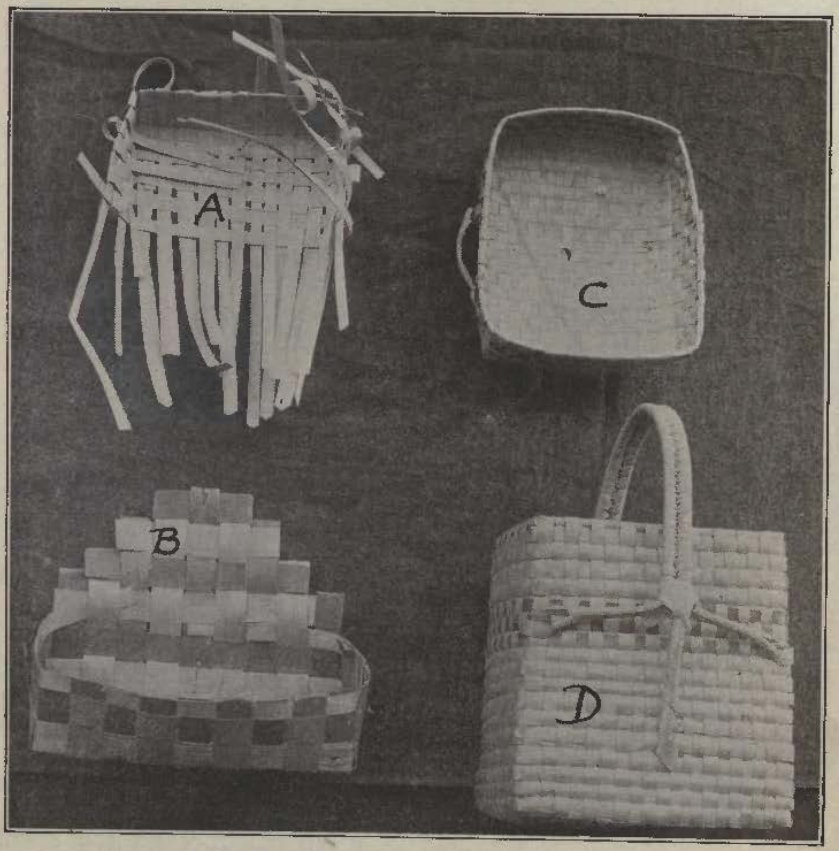


FIG. 43. SPLINT MAT WEAVE BASKETS.

fold left splint obliquely, making its upper edge lie parallel with the bottom horizontal splint. This crosses right perpendicular splint. Pass under first folded splint. There are now two perpendicular sets of splints, and two horizontal, one set to the right, one set to the left. Work held in left hand, fold upper horizontal downwards as before. Then left perpendicular folded horizontally as before. Hold now obliquely and press edges towards center to keep the work evenly, and proceed, folding as directed, as long as required. (See D, Fig. 38.)

NAPKIN RING.—A napkin ring can be made from this strip of diagonal weaving, tucking in the edges. (G, Fig. 38.)

Another form of napkin ring may be made by leaving a little longer ends to the diagonally woven strip, bringing them together and then proceeding to unite them with the ordinary flat mat weave, tucking in the edges as per the illustration, (F, Fig. 38.)

A beautiful variation of the lower edge of the weaving of a diagonal band is shown in H, Fig. 38. Here, instead of obliquely folding and creasing the splint, it is merely twisted in a curve back to the place it would have had if folded and creased. A little practice will make the weaver perfectly conversant with this pretty variation.

Cornucopias, boxes, covers, etc., in great variety of shapes and sizes, may be made upon these principles, one of which is illustrated in B, Fig. 43.

PICTURE FRAME.—Material required: eight long splints of one or various colors; necessary number of short splints.

Prepare foundation as described for Fig. 37. Open up as Fig. 41. Then insert small splints and fill up the vacant spaces marked 1, 2, 3, 4 on Fig. 41. Trim off loose edges and the result is Fig. 42, which can have cardboard or leather back glued or sewed upon it, with ring hanger, or easel.

The question of basket size can always be determined with a little study. In mat weaving the width of splint must be considered. Then there are practically five sides, viz., bottom, two ends, two sides. These sizes determined it is easy to cut splints the required length, taking care, however, to allow two inches or so for turning in (tucking in) at the edges.

It should never be forgotten that good work of any kind can be done only with splints of perfectly even width. These even widths can best be made with the cutter shown in Fig. 18.

In Fig. 43 is shown how this square mat weave may be utilized. The bottom of A is of mat foundation (simple checkerboard). When the corners are turned up, the woof splints of the sides can be continued around the corners and used as the woof splints of the ends. Where the splints meet they can be tucked in, thus strengthening the parts. A little practice soon enables one to do this "tucking in" or "doubling" skilfully.

Fig, 43, C, is the lid for D. It is made same as A. When the cover is deep enough the upright or warp splints are turned over and tucked in. A fastener for the cover to the handle of the basket D is easily made by taking a long splint, folding it around the fourth warp splint from either end, then wrapping one of the folds with the other in an oblique wrap, and binding it to the fourth warp splint from the other end.

The basket D is made in the same way as its cover C, except that it is deeper. To produce the narrowing together towards the top the warp splints should be made to taper a little.

The handle is made as follows: Take two pieces of rattan, cane, willow, or palmetto, the thickness desired and the length the handle is required to be. For weavers use long mat splints well soaked. Hold foundation canes in thumb and forefinger of left hand with weavers under one and over the other. Then wrap around left foundation

FIG. 44. MARKET AND OTHER BASKETS.
Work of Students, Teachers' College, New York.

splint, up between the two, over and around right foundation splint back between the two, down and around left splint, and so on, alternating over and under.

A little practice will soon teach how to affix to basket, taking care always to overwrap or tuck in all ends.

Figs. 44 and 45 show a variety of small models of baskets made by the students at Teachers' College. Excite the interest of children in forms of baskets in actual use, and then urge them to imitate or reproduce in minature. The result will be an interesting collection, showing market baskets, clothes baskets, grocers' baskets, cotton

baskets, hampers, etc. All these are simple and need no detailed instructions further than those already given. The children will readily overcome the problems involved. Here adaptability to purpose, to use, can well be exemplified and important lessons given, which will readily suggest themselves to the teacher, such as: How each basket is used; how carried; what it is to carry; whether carried by one or two persons; locality used, etc. Show how environment influences everything and that the use of different baskets in different localities for the same purpose is the result of different growths, different methods of work, etc.

CANING CHAIRS.—To cane chairs is not a difficult art, yet

FIG. 45. MARKET AND OTHER BASKETS.
Work of Students, Teachers' College, New York.

is practically useful, and has a decided value in teaching the handling of splints. It legitimately comes under the head of mat weaving.

To practice, purchase from a kindergarten suppy house a small, square frame, in which holes an inch apart are bored. Buy or make pegs to fit these holes. Cane is coarse, medium, fine, and fine fine. It must be soaked in water before using. Hold the frame on the lap top uppermost. Count the holes, top and bottom, and pull a piece of fine cane up through the center bottom hole, and down through center top hole, leaving an end two and one-half inches long. Put peg into both of these holes to keep cane in place. Now bring long end of cane, at bottom row, up through next hole on the right, keeping

it flat. Peg it. Take cane now to corresponding hole on top row. Peg; continue this lacing process until right side of frame is reached, taking care not to pull the cane tight. Now start to the left of the center and lace as on the right, but towards the left side of frame. This done, the frame will be filled with lines of vertical splints. Now put in the horizontal splints in exactly the same way, working from center to right and center to left. The frame is now a network of squares.

Now, starting from lower left-hand corner, run a splint to the up-

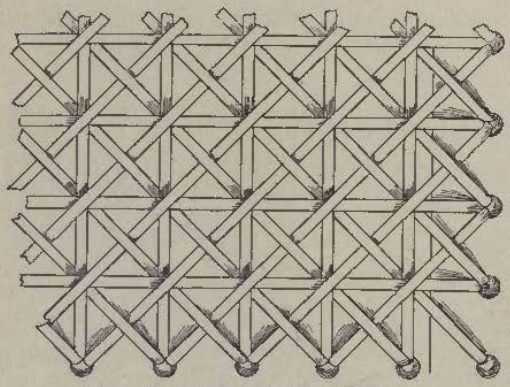


FIG. 46. CANING A CHAIR.

FIG. 47. CANE TIE.

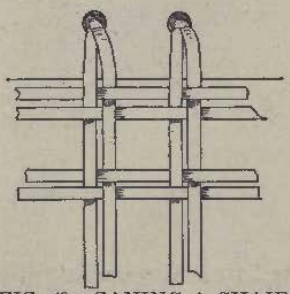


FIG. 48. CANING A CHAIR.

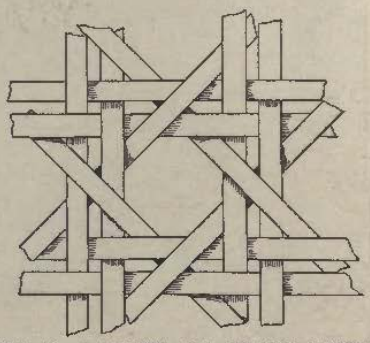


FIG. 49. WEAVE OF CHAIR CANE.

per right-hand corner and continue these diagonal lines exactly the same as the vertical ones, working first to the right, then to the left. At the fourth row from the center, however, actual weaving must begin. The splint must be taken under a cross, over a single splint, under a cross, over single. (See Fig. 46).

This diagonal weaving must be done in the two ways, viz., from the lower left corner to the upper right, and from the lower right to the upper left.

For a binding stitch over the holes, take a splint of binding cane, wide enough to cover the holes of the edge, inserting one end down through the hole at one corner. A splint of fine cane is now brought

up through every other hole, across the binding and back again through the same hole, thus couching it. In finishing off the ends, which should always be on the under side of the frame, bring the loose end to the nearest loop. Pass it underneath the loop, draw tight, then once again, creasing firmly, without any attempt to tie. This will be found to hold securely. (See Fig. 47.)

Everyone is familiar with the octagonal meshed weave of the ordinary cane-seated chair. While doing the work endeavor to have one of these as a pattern close at hand. The explanations that follow will then be perfectly simple. The one thing of importance to remember is that the first row of splints must be put on loosely, for there are six rows of splints and the later woven rows tighten up to the others.

Sit on a small stool or hassock and tilt the chair forward upon your lap. Find the center as before described. Put in the splints vertically and horizontally. Now follow these by putting in another set vertically on top of the first ones and through the same holes. The fourth row is horizontally put in and must be woven as follows: over one upper vertical, under lower vertical, at the same time pulling the upper vertical to the right, and going over or under as the case may require, as shown in Fig. 48. Now begin the diagonal weaving from lower left corner to upper right corner. These go under and over the horizontal pairs and vertical pairs as shown in Fig. 49. In many chairs there are little problems in the corners that the good sense of the weaver will easily solve if he is careful to have a due regard for proportion.

When the diagonal weaving is completed, finish off with the binding as before described.

FIG. 52. HOOP AND SCHOOL BAG OF PLAITED RAFFIA.

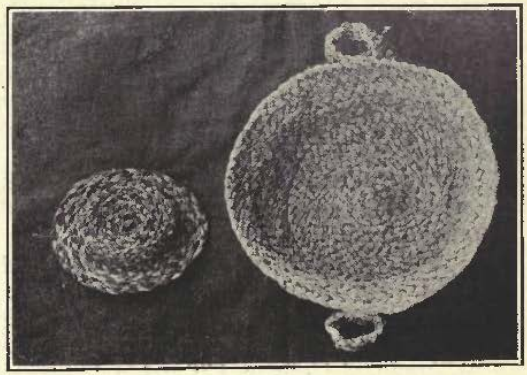


FIG. 53. DOLL'S HAT AND TRAY OF PLAITED RAFFIA.

CHAPTER IX.

THE PLAIT OR BRAID.

Every schoolboy and girl is more or less familiar with the simple forms of plaiting. To gain digital dexterity it is well to introduce it into a Course of Basketry. First of all, let the child practice on simple plaiting with strands of raffia, beginning first with coarse and later using finer material. To facilitate this place a screw hook in the wainscoting or on the under side of the work table, on which the raffia can be placed while plaiting. A little practical experience will soon demonstrate how much raffia must be used to obtain a plait of any given size. When a length of raffia is about to give out, lengthen it by splicing, not by tying, thus avoiding knots. It is not necessary to plait the entire length needed before beginning to use the plait. Alternate plaiting and sewing give variety.

To give purpose to the work, stimulate interest by showing how these plaits can be utilized. In the center of Fig. 50 is the beginning of a small mat. In this the plaits are coiled flat, with the edges outermost and sewed as the coil grows. Above it are two wall pockets, one with, and the other without, a handle. Below it to the left is one of another shape. In these three the plaits are flat and sewed edge to edge with a large darning needle, using for thread a fine strand of raffia. Sew on one side only, and see that it is closely and evenly done. To the right and below is a band made by sewing the plaits together. Under the direction of the teacher this can easily be converted into a harness, for the boy's own use in playing horses. The saddle girth above is of braided sisal hemp expressly for that purpose. Fig. 51 is composed entirely of plaited belts, made of corset lacings. These laces can be dyed so as to give design in the plait. A little experimentation will soon show that the design depends entirely upon how the colored lace is placed at the beginning of the plait. The rings are ordinary brass rings, covered with the lace, and the bottom belt shows that the ends are utilized for tying.

Both boys and girls can be much interested in this plaiting if the articles made are converted into playthings, or something useful, for their own personal use. Belts, bag-handles, toy harness and the like are easily made from this plaited work.

Fig. 52 shows a hoop of plaited raffia, used by boys and girls in one of their out-door games, and below is a school-bag, used for carrying books, etc.

Fig. 53 shows a small doll's hat, and a tray, both made of plaited raffia. All the articles of Figs. 50, 52 and 53 were made by small children at Mr. Neligh's school in Columbus, Ga.

Figs. 54 and 55 are composed of model hats made by the students at Teachers' College, Columbia University, New York. They are all of braided raffia, sewed with the edges outermost.

In the making of these hats seek to draw out the individuality of

each child or student. Let one make a continental hat, another a colonial, still another a Puritan. A Southern girl will naturally try a sombrero, whilst a girl from the Dutch regions of Pennsylvania will make a Dutch farmer's hat. Others will try the Panama, the Coolie, the Chinese, the outing hat, the policeman's helmet, the poke bonnet, etc. In army hats of different nations are a score of suggestive shapes, while in the hats of the peasantry of the world a host more

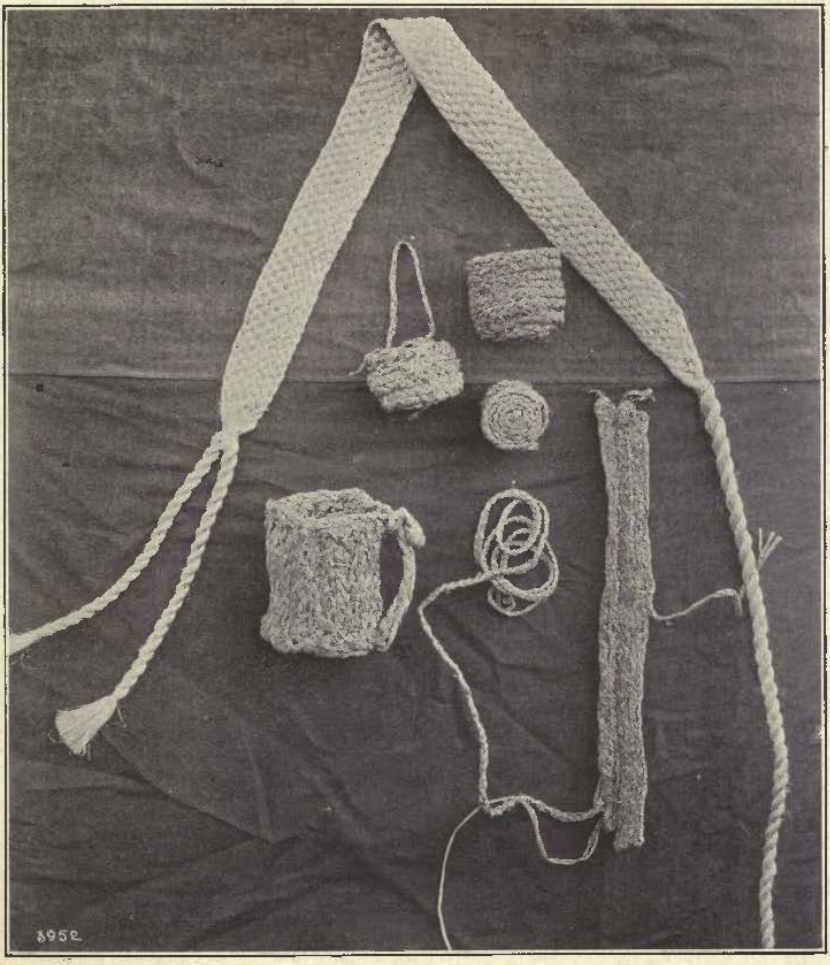


FIG. 50. ARTICLES OF PLAITED RAFFIA, ETC.

of excellent suggestions may be found. To add interest to the work let the child know something of the wearer of these different kinds of hats. Here come in opportunities for fascinating little chats on history, geography, social and domestic customs, the reasons that used to exist for the different kinds of headgear used in the various regiments of the same army, etc.

Then, too, native taste may be exercised and called into existence in the choice of a modern outing hat. "If you make a modern hat, make such an one as you would personally like to wear." This demands personality, individuality, the conscious exercise of choice. Then try to make a hat that would suit some friend. Remember that a good milliner in choosing a hat studies the shape of the face and head, the color of the hair, the form, etc., of the wearer. Thus she is able to produce a hat that will harmonize with the individuality of the wearer.

Figs. 56 and 57 are various baskets of plaited raffia made by the students of Teachers' College. Various colors are used and pretty

FIG. 51. PLAITED BELTS.
Work of Students, Teachers' College, New York.

effects produced. Firmness of weave, solidity of the basket as a whole, neatness in sewing the plaits together, harmony of color where it is used, and good shape are all sought after.

Five-stranded plaits of raffia often come in very useful, and the manner of making is clearly shown in Fig. 58.

FIG. 50a. BOTTOM OF DEERFIELD BASKET.

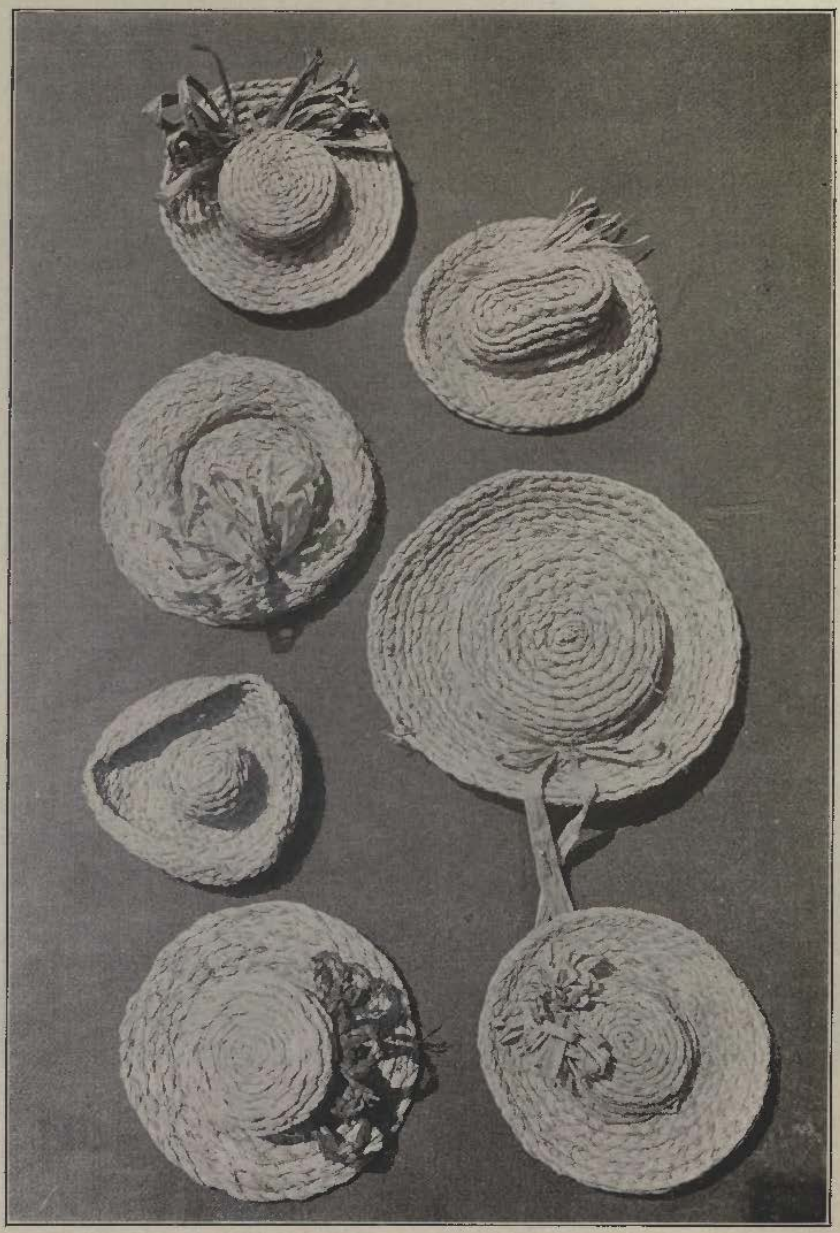


FIG. 54. PLAITED RAFFIA HATS.
Work of Students, Teachers' College, New York.

CHAPTER X.

THE NET.

From page 158, "Indian Basketry," it will be seen that carrying nets were and are made by the Mission Indians of California. The Pimas have a carrying basket in which the net is used.

Various materials can be used in this work. Twisted hemp, rushes, braided raffia, yucca fibre, etc. Even unbraided raffia may be used. It should be slightly dampened for several hours before using.

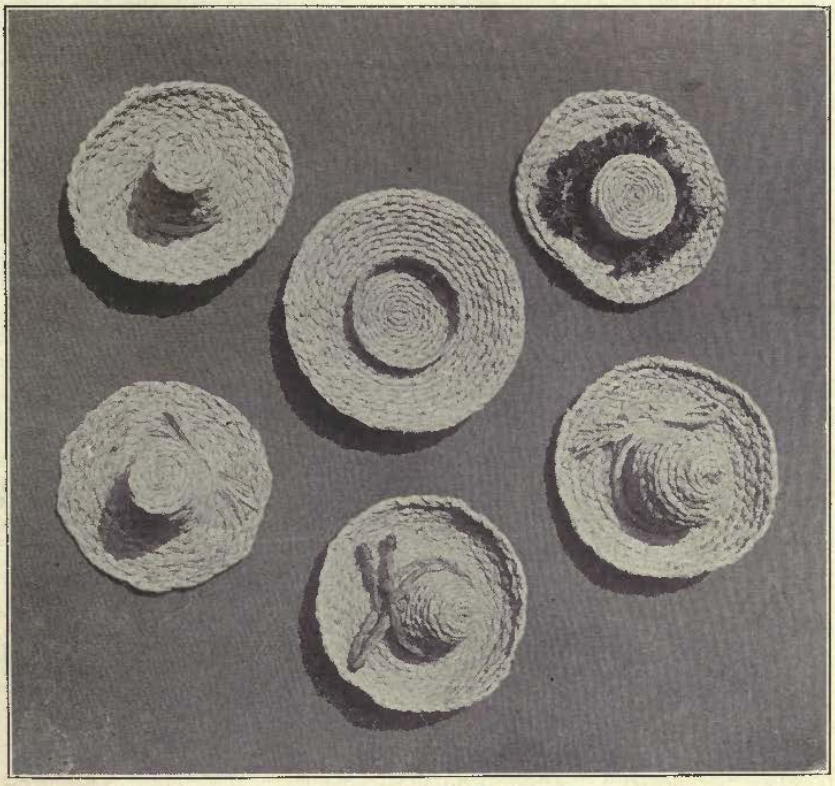


FIG. 55. PLAITED RAFFIA HATS.
Work of Students, Teachers' College, New York.

For a netted work or handkerchief-bag, as shown in A, Fig. 61, secure twelve strands raffia of two colors and a stick about a yard long and one and one-half inches wide. Hold the stick in any easy position so that a strand of raffia may be doubled and tied around the

stick, as shown in Fig. 59. Draw the knot tight. Put on the rest of the strands in like manner. Separate to about an inch apart, then knot each strand at about the distance of an inch with the nearest strand of the next pair. Make even meshes all the way across. Continue this all the way down for five or six rows, narrowing the meshes

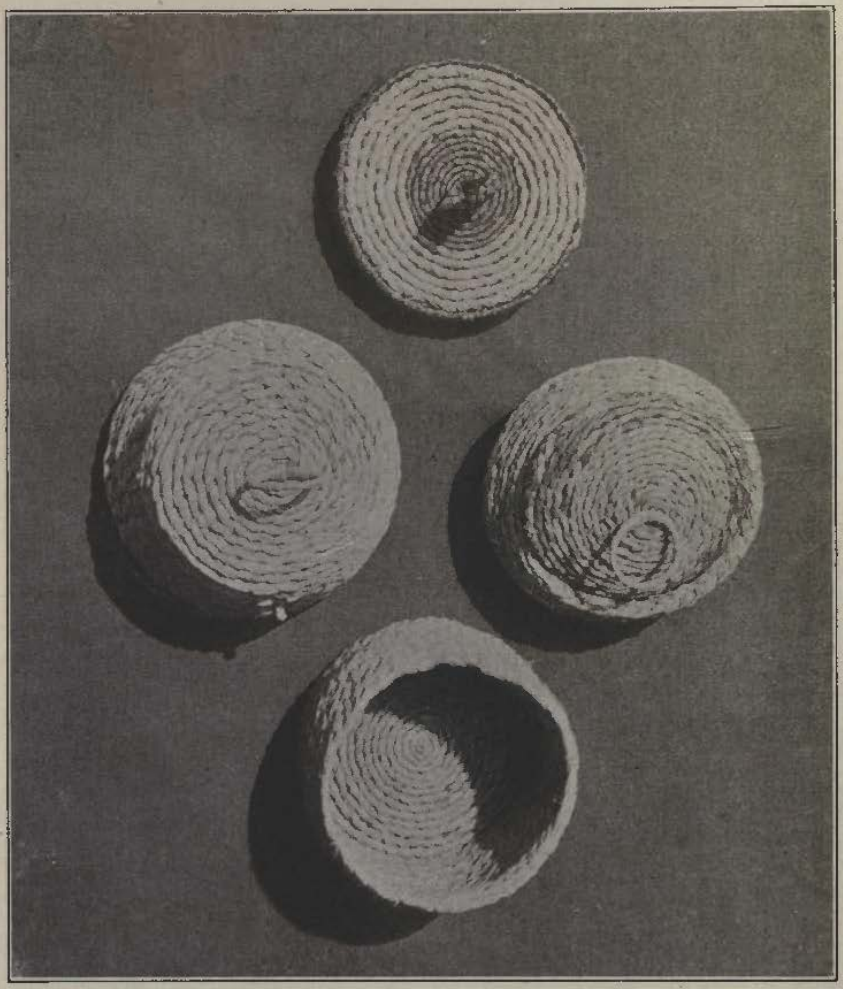


FIG. 56. BASKETS OF PLAITED RAFFIA.
Work of Students, Teachers' College, New York.

towards the bottom. Then slip the knots from the stick, and proceed to close up the bag by knotting the loose sides together.

At the bottom the whole of the strands are gathered together and tied with a single or braided strand. The ends are then cut evenly, a length of plaited raffia put through the upper mesh and tied, and the bag is complete.

A pretty effect is caused by loosely braiding the strands of two bottom rows of meshes before knotting them.

Another style of bag is made by keeping the meshes of equal size all the way to the bottom, then joining the two sides at the bottom, by matching the knots and meshes together and then knitting two strands from the front and two from the back together for the finishing row. The ends can then be cut and the bag is complete.

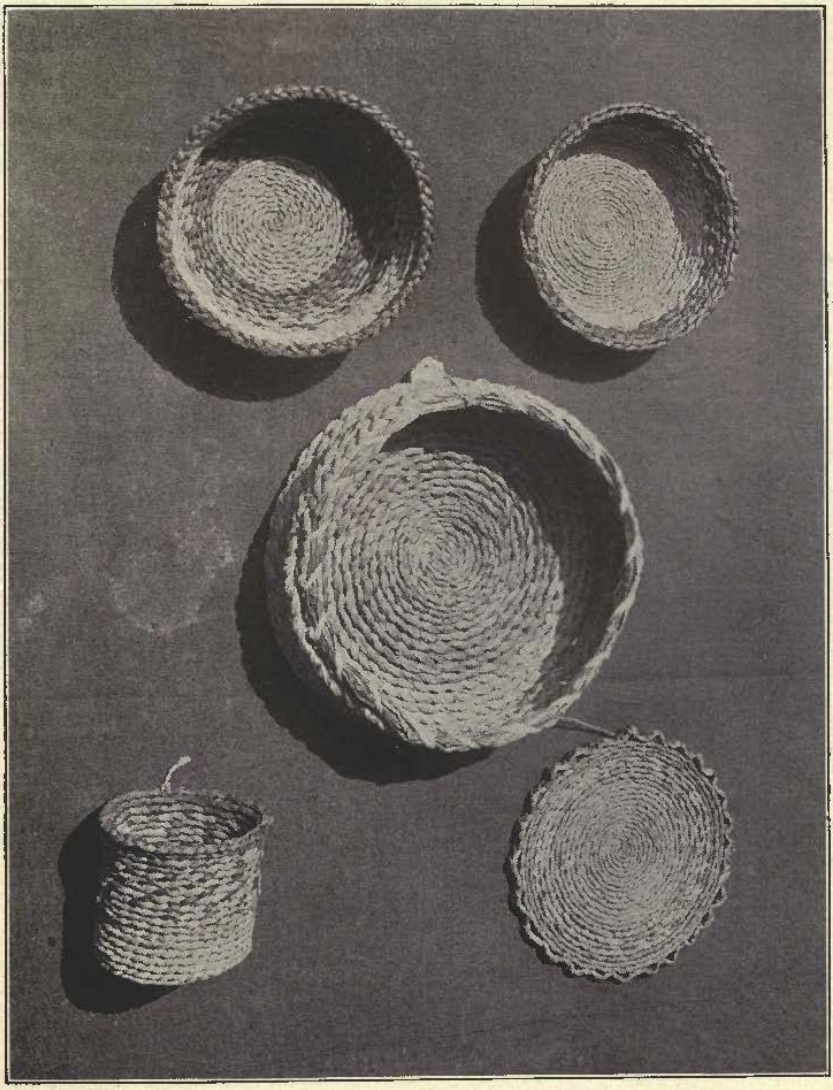


FIG. 57. BASKETS OF PLAITED RAFFIA.
Work of Students, Teachers' College, New York.

If tassels are desired they may be made of raffia and sewed on. When the bag is lined with silk or turkey red cotton it is a pretty and serviceable article.

A twine bag may be made in the same manner as A, Fig. 61, except that the meshes must be much smaller, and the number of strands

limited to the size of the ball of twine. With a tassel on the bottom, and tied tightly on the top, the twine allowed to come through one of the meshes, it can be suspended wherever needed.

In netting with raffia or other materials an infinite variety of articles may be made, and all different, as suggested in B, C and D,

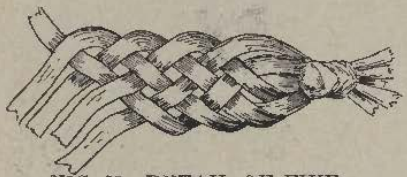


FIG. 58. DETAIL OF FIVE STRAND PLAIT.

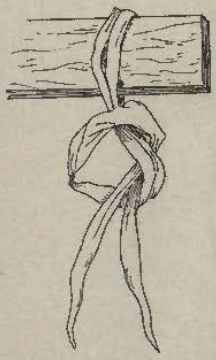


FIG. 59. STITCH AND KNOT OF RAFFIA.

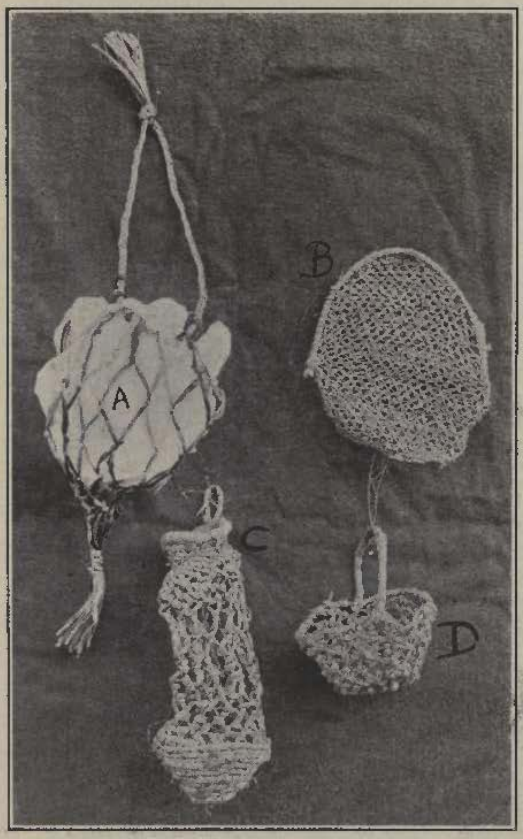


FIG 61. NETTED BAGS OF RAFFIA, ETC.

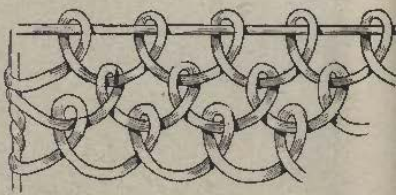


FIG. 60. SNIGLE NET MESH.

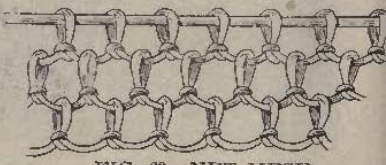


FIG. 62. NET MESH.

Fig. 61. B is a small netted purse of raffia of fine mesh, using the single net stitch of Fig. 60.

C is netting the same as described in the work-bag A, but has a bottom and top of coiled and sewed plaited raffia.

D is a pretty little basket made of a fibre brought from Puerto

Rico. It is composed entirely of fancy stitches, knotted or fastened as required. These fancy stitches give wonderful variety to basket work and can be introduced here and there as taste and skill dictate. These may be imitated from any book of fancy needlework, similar to Figs. 62 to 66, for which I am indebted to the "Priscilla Needlework

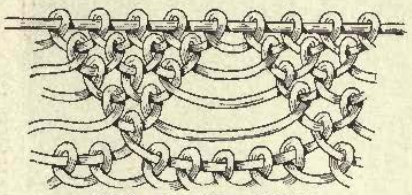


FIG. 63. NET MESH.

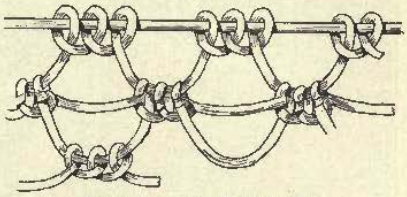


FIG. 64. NET MESH.

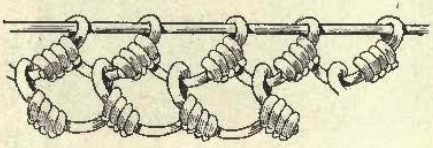


FIG. 65. NET MESH.

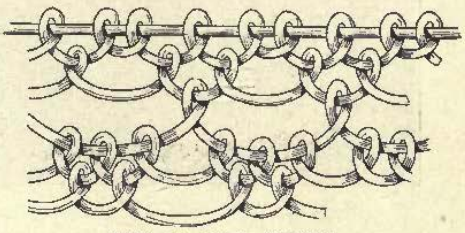
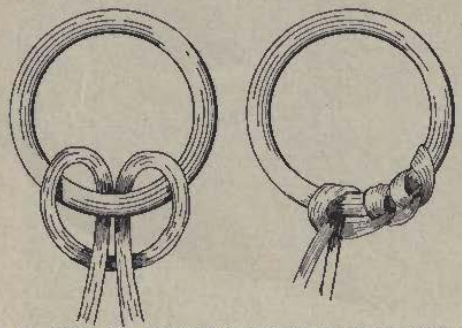


FIG. 66. NET MESH.

Book for 1903." Any of these may be imitated in raffia, yucca fiber, etc.

A pretty napkin-ring can be made by taking ten curtain rings about an inch in diameter and covering them with the buttonhole stitch shown in Figs. 67 and 68. Raffia or any fibre may be used. When all the rings are covered, overlap them, and then join by passing a ribbon or five-strand plait of raffia (see Fig. 58) an inch wide, through, then under and over, as shown in Fig. 69. The size of rings may be varied to suit the size of napkin.



FIGS. 67 AND 68. BUTTON HOLE STITCH ON RING.

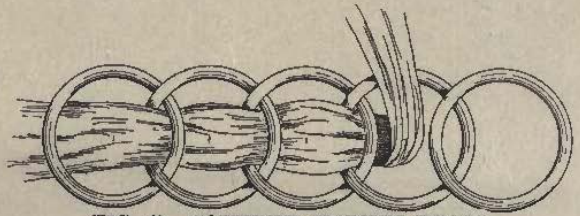


FIG. 69. COVERED NAPKIN RINGS.

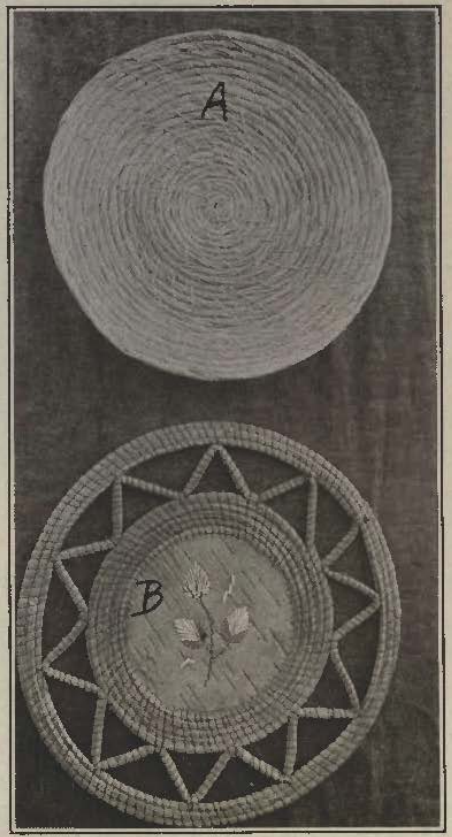


FIG. 70. SIMPLE COILED WEAVE AND VARIATION.

CHAPTER XI.

THE COIL WEAVE.

The coil is one of the favorite weaves of the best basket makers in the world, viz., the Indians of the American West and Southwest. It is simple and yet capable of large variation, and, when performed by an artist, is exquisitely beautiful. As Professor Mason has well written:

"Coiled basketry in point of size presents the greatest extremes. There are specimens delicately made that will pass through a lady's finger ring, and others as large as a flour barrel; some specimens have stitching material one-half inch wide, as in the Pima granaries, and in others the root material is shredded so fine that nearly 100 stitches are made within an inch of space. In form, the coiled ware may be perfectly flat, as in a table mat, or built up into the most exquisite jar shape, in design, the upright stitches lend themselves to the greatest variety of intricate patterns."

The simplest form of coiled work is shown in Fig. 70. The material of the coil may be almost anything capable of being coiled, such as grass, sweet grass, corn husks, straw, raffia, broom corn, shredded cat-tail, split willows, etc. The plain mat of Fig. 70 is of raffia, while the fancy one is of sweet grass, with a center of cedar-bark. Taking a length of the coil material, it is tightly wrapped with thread, twine, raffia, or whatever is to be used for sewing. A strong tapestry needle is needed for the sewing. The coil is then begun, the stitches being taken just past the preceeding one, as the work progresses. This gives the even and beautiful spiral effect.

The variation of B, Fig. 70, will be easily mastered. The center may be birch bark (ornamented, as this is, with colored quills), or of leather. The first grass coil is sewed to its outer edge. The zig-zag is introduced and the mat then completed with three rounds of coil.

Great care should be exercised in putting in new material to replenish the coil. Upon this depends the evenness of the work.

Fig. 71 is of coiled trays made by the students of Teachers' College. Of these Miss Hyde writes and thus instructs how to make:

They are made of hemp, combined with grasses, sedges, rushes, etc., gathered in the immediate neighborhood of New York. Let the children go out and gather their own material for these simple trays. Dye the hemp and take an amount equivalent to three-eight inch coil; wrap for a distance of three-fourths of an inch, allowing spaces of one inch between wraps; then fasten and sew, each time inserting the needle with point toward you between every wrap, thus giving a radiation from the center as the work progresses. To finish allow the coil to diminish gradually and make a secure fastening.

Fig. 72 is of a group of mats and baskets made of long pine needles. They are pretty and useful, and made with comparative ease. D is an oval mat, made exactly as the mat in Fig. 36, except that an oval center was first made by bending a strong and thick needle to the

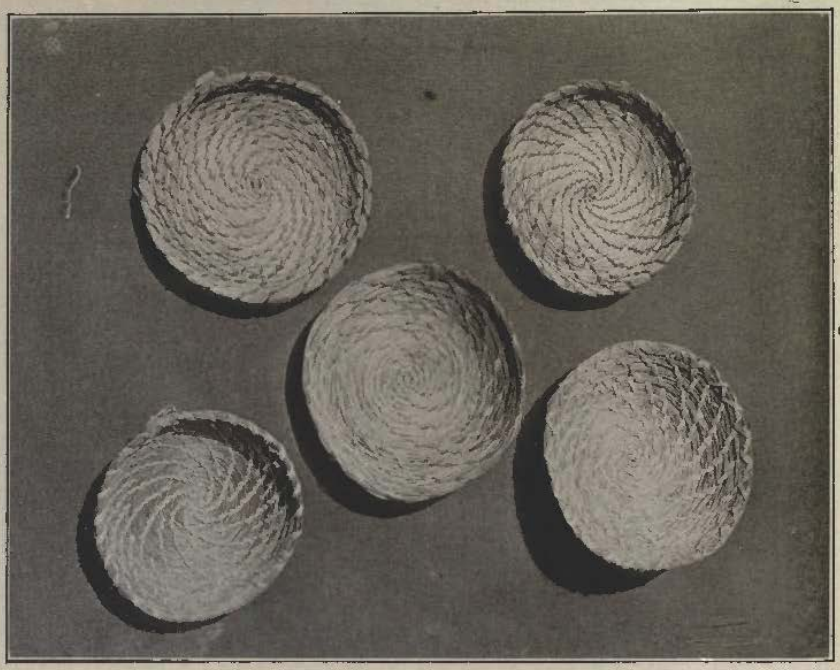


FIG. 71. SIMPLE COILED TRAYS.
Work of Students, Teachers' College, New York.

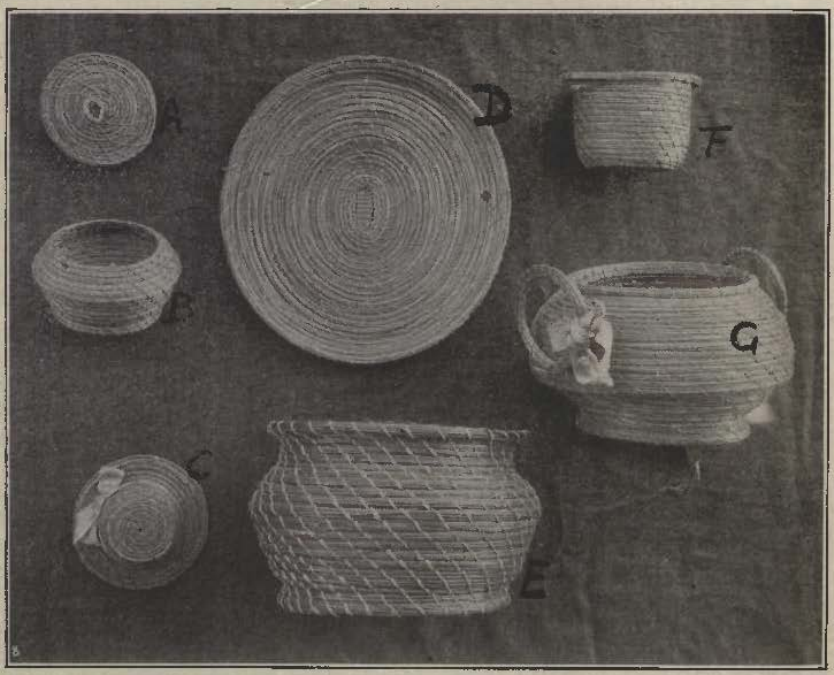


FIG. 72. PINE NEEDLE COILED BASKETS.

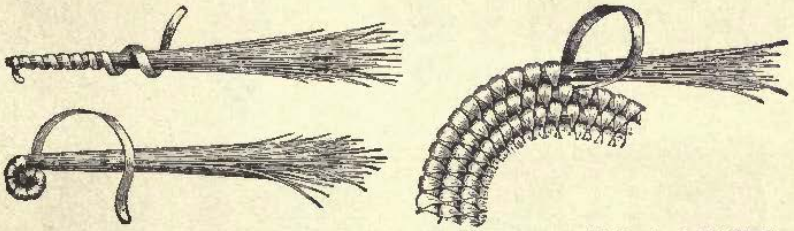
shape required. This was then filled up with darned work, and used as the basis. It makes an excellent tray for the toilet table, or a mat for the dinner table.

C is a "cute little hat," circular in shape, decked off with a piece of ribbon. The top is an inch and a half in diameter, the height two and a quarter inches, the width of brim three-quarters of an inch, the diameter of bottom, including brim, three and one-eighth inches.

E and G, Fig. 72, are dissimilar in shape, yet made in the same way. Each has a base of two coils, sewed on after the basket was elsewhere finished. The handles of G are each of two circular coils, two and a half inches in diameter, and sewed to the sides. F is smaller and the two upper coils are made oval so as to afford two slight protuberances which act as handles. B is a dainty little basket, to which A is the lid. It is two and a quarter inches across at the bottom, and the lid is flanged and fits snug.

When these long pine needles baskets are known they will become wonderfully popular in a short time.

In the making of all these baskets stimulate the student to stability



FIGS. 73, 74, 75. MANUFACTURE OF SPIRALLY COILED WEAVES.

and firmness. A basket must sit firmly on the table and be tightly woven. No "wobblety" bottom, and no slovenly work in the sides will be tolerated. Here are two important things to be attained.

Figs. 73, 74, 75 clearly show the Indian method of making the simple coiled weave. I quote Lieut. Cushing's description: "In the manufacture of the Havasupai boiling baskets, which are good examples of the helix or spirally coiled type of basket, the beginning was made at the center of the bottom. A small wisp of fine flexible grass stems or osiers softened in water was first spirally wrapped a little at one end with a flat, limber splint of tough wood, usually willow. (Fig. 73.) This wrapped portion was then wound upon itself, the outer coil thus formed (Fig. 74) being firmly fastened as it progressed to the one already made by passing the splint wrapping of the wisp each time it was wound around the latter through some strands of the contiguous inner coil, with the aid of a bodkin. (Fig. 75.) The bottom was rounded upward and the sides were made by coiling the wisp higher and higher, first outward, to produce the bulge of the vessel, then inward, to form the tapering upper part and neck, into which the two little twigs or splint-loops were firmly woven."

This subject will be found more fully discussed in the chapter on

Indian Stitches, and in my book on Indian Basketry. Scores of exquisite baskets made by this stitch are pictured.

As Professor Mason has shown in his bulletin, there are nine different varieties of coiled basketry which he analyzes and describes as follows:

"The foundation may be (1) a single stem or rod; (2) a stem with a thin welt laid on top of it; (3) two or more stems over one another; (4) two stems laid side by side, with a welt; (5) three stems in triangular position; (6) a bundle of splints or small stems; (7) a bundle of grass or small shreds.

The stitches pass around the foundation in progress (1) interlocking, but not inclosing the foundation underneath; (2) under one rod

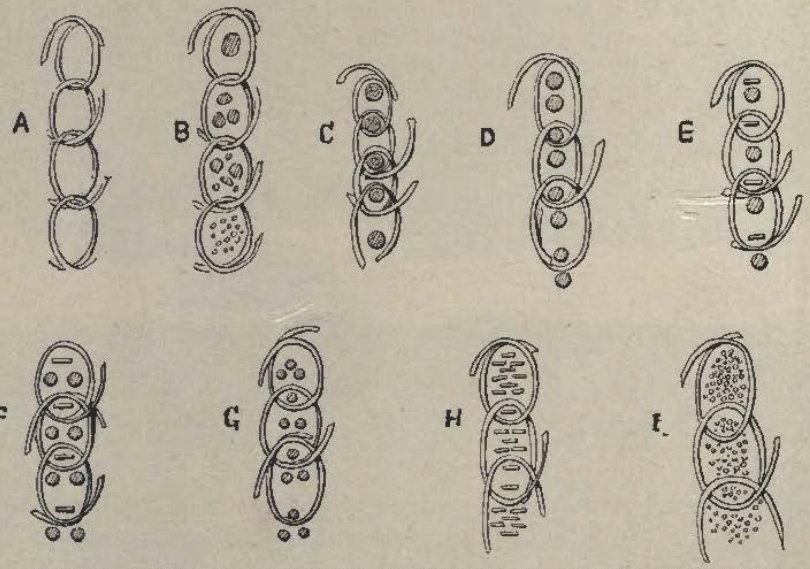


FIG. 76. CROSS SECTIONS OF VARIETIES IN COILED BASKETRY.

of the coil beneath, however many there may be; (3) under a welt of the coil beneath; (4) through splints or other foundation, in some cases systematically splitting the sewing material underneath. With these explanations it is possible to make the following nine varieties of coiled basketry, matting, or bagging:

A. Coiled work without foundation.
B. Simple interlocking coils.
C. Single-rod foundation.
D. Double-stem coil, two rod foundation.
E. Packing inclosed, rod and welt foundation.
F. Packing inclosed, two rod and splint foundation.
G. One rod inclosed, three-rod foundation.
H. Splint foundation.
I. Grass-coil foundation.
K. Fuegian coiled basketry.

These will now be taken up systematically and illustrated (fig. 76).

A. COILED WORK WITHOUT FOUNDATION.—Specimens of this class have been already mentioned. The sewing material is babiche or fine rawhide thong in the cold north, or string of some sort farther south. In the Mackenzie Basin will be found the former, and in the tropical and subtropical areas the latter. If a plain, spiral spring be coiled or hooked into one underneath, the simplest form of the open coiled work will result. An improvement of this is effected

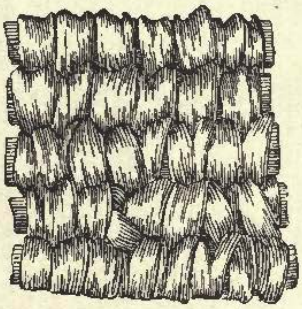


FIG. 77. DETAIL OF INTERLOCKING STITCHES.

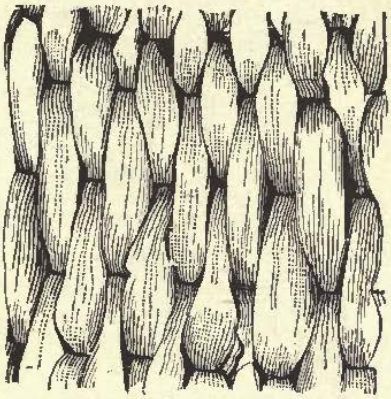


FIG. 78. DETAIL OF SINGLE-ROD COIL IN BASKETRY.

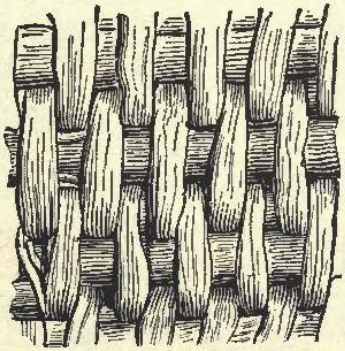


FIG. 79. FOUNDATION OF TWO RODS, VERTICAL.

FIG. 80. ROD AND WELT COILED WORK.

when the moving thread in passing upward after interlocking is twined one or more times about its standing part (Fig. 76A.)

B. Simple interlocking coils.—Coiled work in which there may be any sort of foundation, but the stitches merely interlock without catching under the rods or splints or grass beneath. This form easily passes into those in which the stitch takes one or more elements of the foundation, but in a thorough ethnological study small differences can not be overlooked (fig. 76 B). Fig. 77 represents this style of workmanship on a coiled basket in grass stems from Alaska, collected by Lucien M. Turner. The straws for sewing merely interlock without gathering the grass roll.

C. Single-rod foundation.—In rattan basketry and Pacific coast ware, called by Dr. J. W. Hudson Tsai in the Poma language, the foundation is a single stem, uniform in diameter. The stitch passes around the stem in progress and is caught under the one of the preceding coil, as in fig. 76 C. In a collection of Siamese basketry in the U. S. National Museum the specimens are all made after this fashion; the foundation is the stem of the plant in its natural state, and the sewing is with splints of the same material, having the glistening surface outward. As

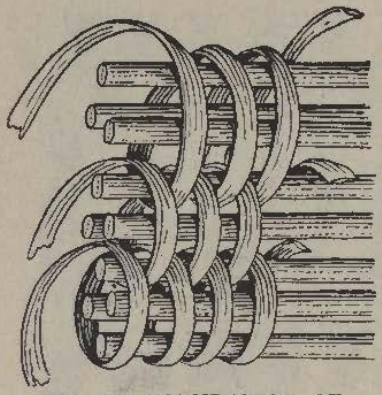


FIG. 81. FOUNDATION OF THREE RODS.

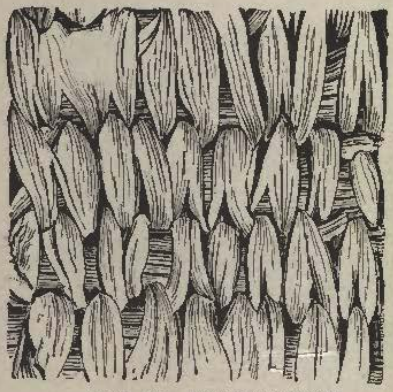


FIG. 82. FOUNDATION OF SPLINTS.

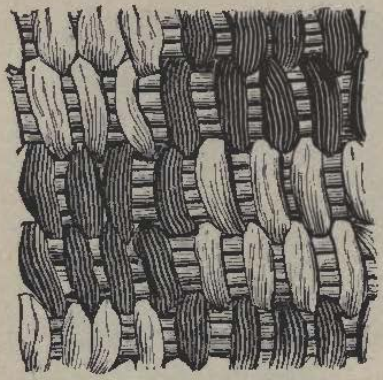


FIG. 83. INTERLOCKING COILS, STRAW FOUNDATION.

FIG. 84. OPEN COIL, INCLOSING PART OF FOUNDATION.

this is somewhat unyielding, it is difficult to crowd the stitches together, and so the foundation is visible between.

In America single-rod basketry is widely spread. Along the Pacific coast it is found in northern Alaska and as far south as the borders of Mexico. The Poma Indians use it in some of their finest work. The roots of plants and soft stems of willow, rhus, and the like are used for the sewing, and being soaked thoroughly can be crowded together so as to entirely conceal the foundation (fig. 78).

D. Two-rod foundation.—One rod in this style lies on top of the other; the stitches pass over two rods in progress and under the upper

one of the pair below, so that each stitch incloses three stems in a vertical series. A little attention to fig. 76 D will demonstrate that the alternate rod or the upper rod in each pair will be inclosed in two series of stitches, while the other or lower rod will pass along freely in the middle of one series of stitches and show on the outer side. Examples of this two-rod foundation are to be seen among the Athapascan tribes of Alaska, among the Poma Indians of the Pacific coast, and among the Apache of Arizona. An interesting or specialized variety of this type is seen among the Mescaleros of New Mexico, who use the two-rod foundation, but instead of passing the stitch around the upper rod of the coil below, simply interlock the stitches so that neither

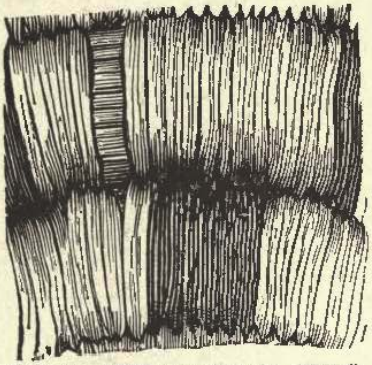
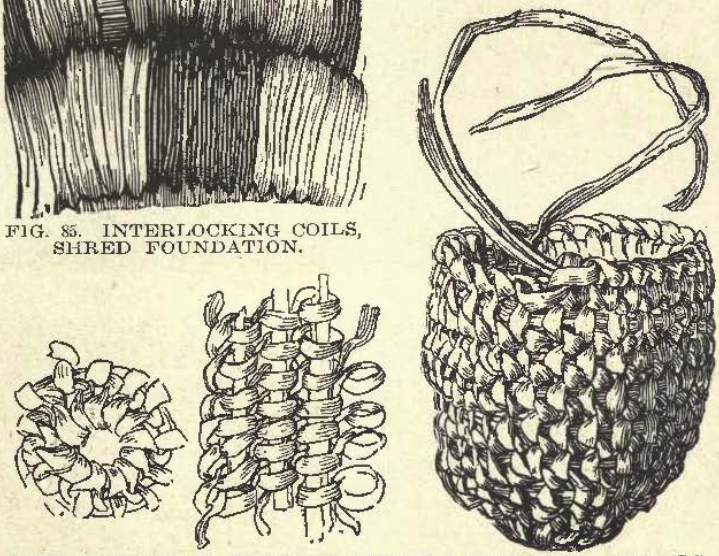


FIG. 85. INTERLOCKING COILS, SHRED FOUNDATION.



FIGS. 86, 87 AND 88. FUEGIAN COILED BASKET AND DETAILS.

one of the two rods is closed twice. This Apache ware is sewed with yucca fiber and the brown stems of other plants, producing a brilliant effect, and the result of the special technic is a flat surface like that of pottery (fig. 79). The U. S. National Museum possesses a single piece of precisely the same technic from the kindred of the Apache on the lower Yukon.

E. Rod and welt foundation.—In this kind of basketry the single-rod foundation is overlaid by a strip or splint of tough fiber, sometimes the same as that with which the sewing is done; at others a strip of leaf or bast. The stitches pass over the rod and strip which are on top down under the welt only of the coil below, the stitches interlocking. The strip of tough fiber between the two rods which

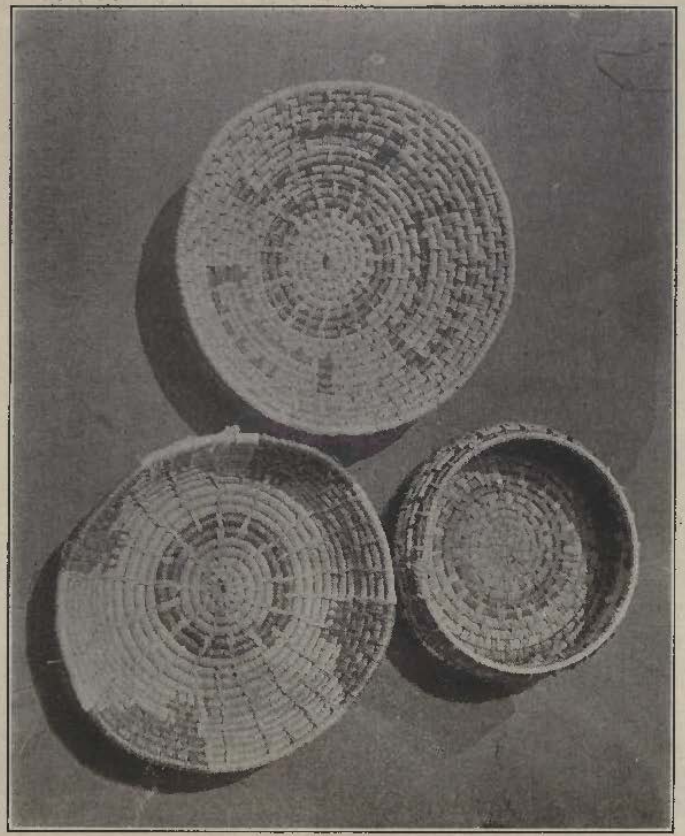


FIG. 91. COILED RAFFIA BASKETS.
Work of Students, Teachers' College, New York.

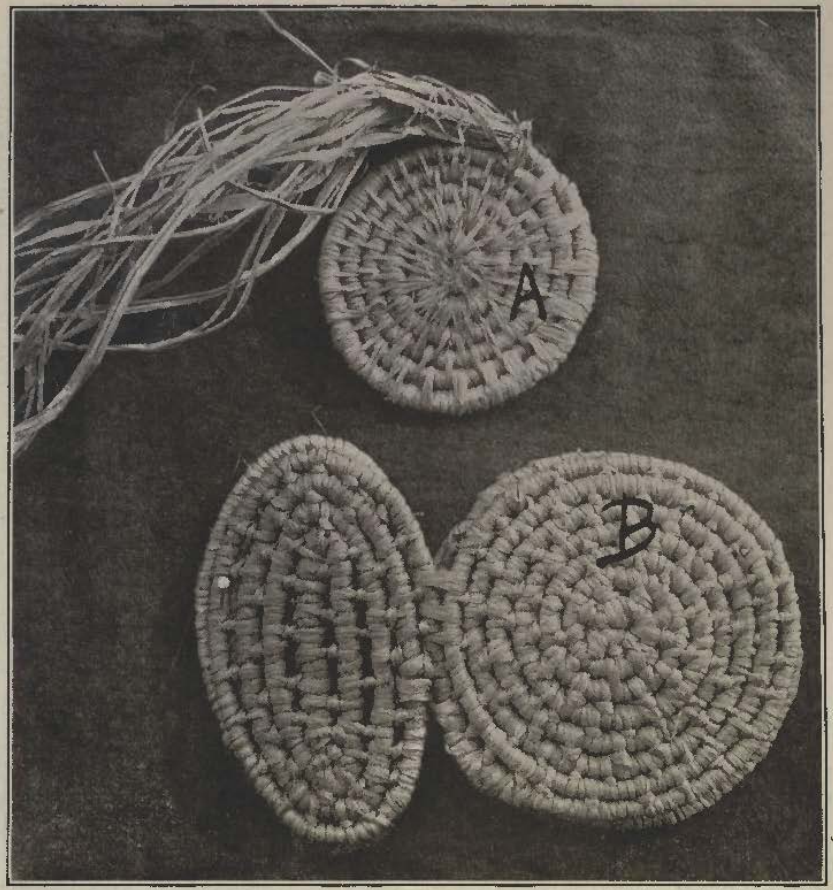


FIG. 89. COILED RAFFIA BASKETS.

serves for a welt has a double purpose—strengthening the fabric and chinking the space between the rods (fig. 76 E and fig. 80). This style of coil work is seen on old Zuni basket-jars and on California examples. The type of foundation passes easily into forms (fig. 76) C, D, and F.

F. Two rod and splint foundation.—In this style the foundation is made thicker and stronger by laying two rods side by side and a splint or welt on top to make the joint perfectly tight. The surface will be corrugated. Tribes practicing this style of coiling generally have fine material and some of the best ware is so made up.

G. Three-rod foundation.—This is the type of foundation called by Dr. J. W. Hudson bam-tsu-wu. Among the Poma and other tribes in the western part of the United States the most delicate pieces of basketry are in this style. Dr. Hudson calls them the "jewels of coiled basketry." Surfaces are beautifully corrugated, and patterns of the most elaborate character can be wrought on them. The technic is as follows: Three or four small uniform willow stems serve for the foundation, as shown in fig. 81; also in cross section in fig. 76 G. The sewing, which may be in splints of willow, black or white carex root, or cercis stem, passes around the three stems constituting the coil, under the upper one of the bundle below, the stitches interlocking. In some examples this upper rod is replaced by a thin strip of material serving for a welt (see fig. 76 F). In the California area the materials for basketry are of the finest quality. The willow stems and carex root are susceptible of division into delicate filaments. Sewing done with these is most compact, and when the stitches are pressed closely together the foundation does not appear. On the surface of the bam-tsu-wu basketry the Poma weaver adds pretty bits of bird feathers and delicate pieces of shell. The basket represents the wealth of the maker, and the gift of one of these to a friend is considered to be the highest compliment.

H. Splint-foundation.—In basketry of this type the foundation consists of a number of longer or shorter splints massed together and sewed, the stitches passing under one or more of the splints in the coil beneath (fig. 82). In the Poma language it is called chilo, but it has no standing in that tribe. In the Great Interior Basin, where the pliant material of the California tribes is wanting, only the outer and younger portion of the stem will do for sewing. The interior parts in such examples are made up into the foundation (fig. 76 H). Such ware is rude when the sewing passes carelessly through the stitches below, in others the splitting is designed and beautiful. In the Klikitat basketry the pieces of spruce or cedar root not used for sewing material are also worked into the foundation.

I. Grass-coil basketry.—The foundation is a bunch of grass or rush stems, of small midribs from palm leaves, or shredded yucca. The effect in all such ware is good, for the reason that the maker has perfect control of her material. Excellent examples of this kind are to be seen in the southwestern portions of the United States, among the pueblos and missions, and in northern Africa. The sewing may be done with split stems of hard wood, willow, rhus, and the like, or, as in the case of the Mission baskets in southern California, of the stems of rushes (Juncus acutus), or stiff grass (Epicampes rigidum). (See fig. 83 and the cross section given in fig. 76 I). In the larger granary baskets of the Pima a bundle of straws furnishes the foundation,

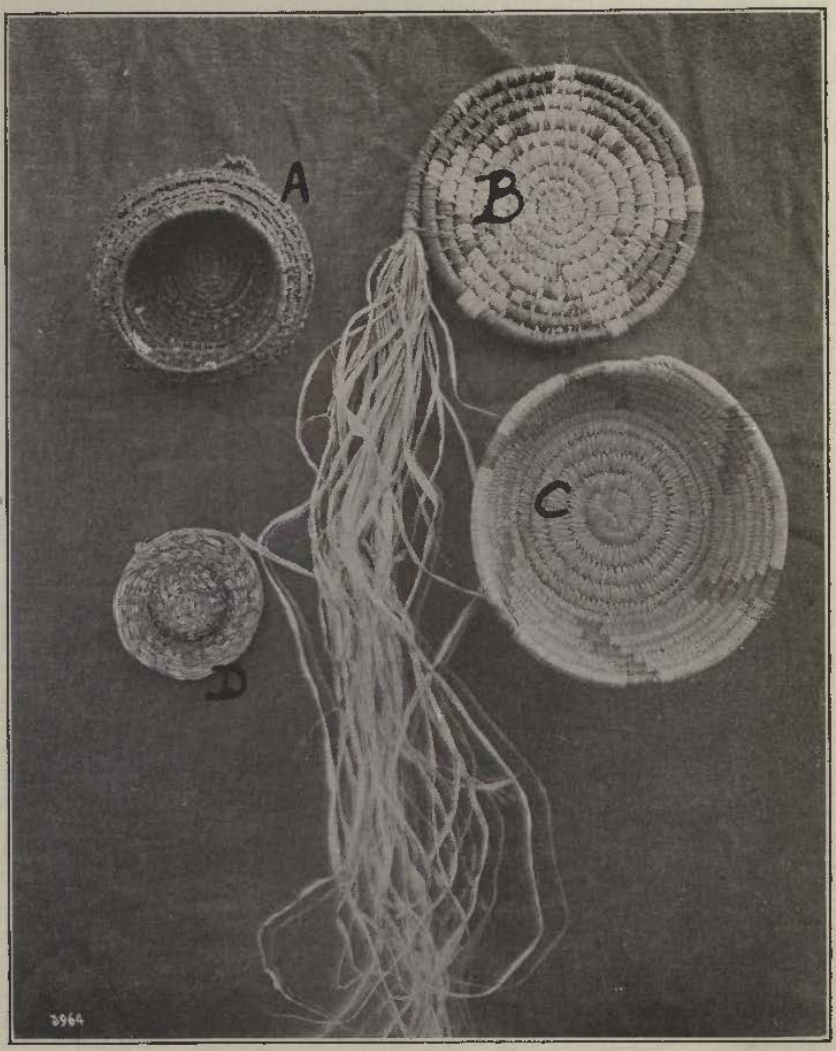


FIG. 90. COILED RAFFIA BASKTES.

while the sewing is done with broad strips of tough bark, as in fig. 84. In the Fuegian coiled basketry, of which a figure is given, the sewing is done with rushes, but instead of being in the ordinary over-and-over stitch it consists of a series of half hitches or buttonhole stitches (fig. 86).

Among the basketry belonging to the grass-coil foundation type are the Hopi plaques, built upon a thick bundle of the woody stems of the yuccas, which furnish also the sewing material from the split leaf (fig. 85). If this be examined in comparison with a style of basketry found in Egypt and in northern Africa as far as the Barbary states, great similarity will be noticed in the size of the coil, the color of the sewing material, the patterns, and the stitches. The suggestion is here made that this particular form of workmanship may be due to acculturation, inasmuch as this type of basketry is confined in America to the Hopi pueblos, which were brought very early in contact with Spaniards and African slaves.

K. Fuegian coiled basketry.—In this ware the foundation is slight, consisting of one or more rushes; the sewing is in buttonhole stitch or half-hitches, with rush stems interlocking. The resemblance of this to Asiatic types on the Pacific is most striking (fig. 86)."

The student can utilize almost all of these methods in one kind of work or another, and, when time permits, it is well to experiment in the various styles with the home materials.

In fig. 89, two different methods of coiled basketry are shown. Here, after the center has been begun, the new part of the coil is wrapped for a certain number of stitches, then it is sewed to the preceding coil, as in A. In B, the same method is followed, with the addition of a cross stitch over the stitch which binds the two coils together. The Indians of Kern County occassionally use the former of these stitches, and my friend, Mr. E. L. McLeod, has some beautiful specimens of the weaver's art done in this, what he calls, lazy stitch. It is so-called by him because each stitch is not bound to the preceding coil as in all their finer work.

B. fig. 90 is another specimen, made by a ten year old boy, of the coiled lazy stitch. A, is a work-basket of the same stitch. The bottom is two and a half inches in diameter. The diameter increases up to five inches, and is then decreased until it is 3 1-2 inches at the top.

C. fig. 90 is the next step in coiled basketry. We have now reached, what we might term, the pure coiled work of the Indian. Though made of raffia, many people looking at the photograph, might easily mistake this for a genuine Indian basket, though, of course, no one but the merest tyro could be deceived if he held the basket in his hands.

Most of the celebrated baskets of the Pocumtuck Society, of Deerfield, Mass., are made in the stitch shown in Fig. 89. I have pleasure herewith in presenting a description of the baskets illustrated and the work of this Society by Miss Margaret C. Whiting, which will be read with interest and profit.

"The baskets produced at Deerfield, Mass., show the fundamental traits of sound workmanship and an intelligent use of material, which the other crafts of that little village display; and their example has been a source of encouragement to the production of the good work

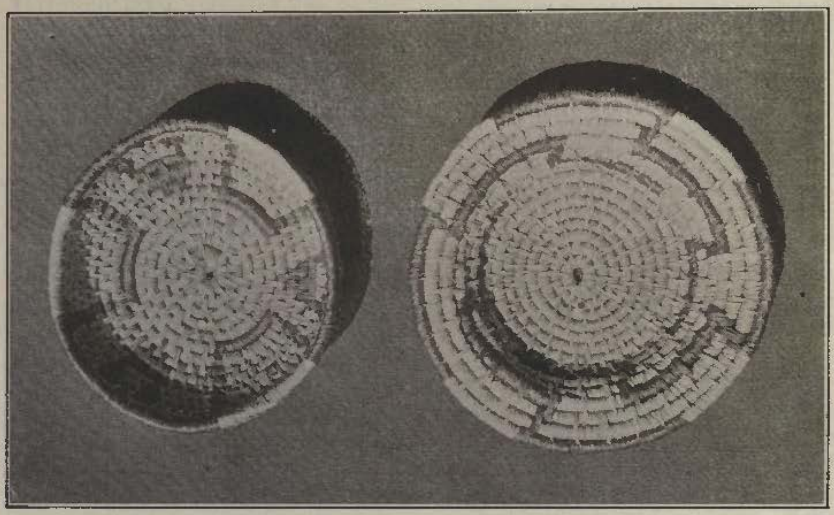


FIG. 92. COILED RAFFIA BASKETS.
Work of Students, Teachers' College, New York.

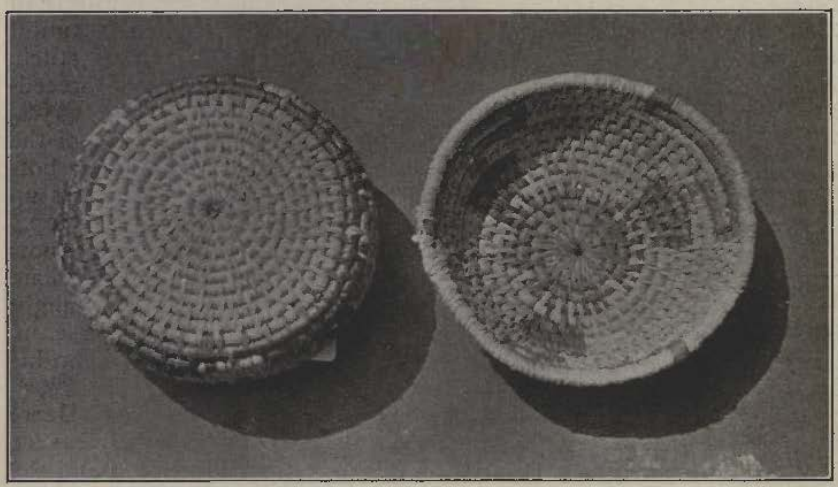


FIG. 93. COILED RAFFIA BASKETS.
Work of Students, Teachers' College, New York.

now being done by other groups of village workers in basketry in different localities. In the matter of color the Deerfield workers in raffia have, probably, been of chief public service, for from the first their baskets have owed a good part of their reputation to the natural dyes they employ. With indigo, madder, fustic, copperas and logwood these craftswomen have uttered their convincing protest against the crude and vicious color discords of the chemical dyes, and with the varying shades and tones their old-fashioned dyes offer they produce harmonies the public is quick to value. The Pocumtuck Basket Society, as the raffia workers have named themselves, after the long-gone earliest inhabitants of their valley, have wisely recognized that the Indian, like all masters in art, may not be imitated by those whose taste is sophisticated and minds trained to other and different standards of beauty, and have frankly refused to use designs or color combinations that belong to the red man's choice. In their designs they prefer to work out the themes and harmonies of Nature; a butterfly, a flower, an animal or even a landscape may serve for suggestion, and the way it is translated into the medium of raffia furnishes the problem for the individual craftswoman to solve for herself. One large basket woven of the natural colored raffia for a ground color bears two landscape designs for its decoration; on one swelling side is seen a group of trees in dull rich greens against a blue sky, a house in red with windows and doors in black and a lighter green foreground; on the opposite occurs exactly the same landscape all dark in blues and greens, the house in black and and the upper edge of the roof and trees just touched with the pink reflections from a big pink moon that rises in the pale sky; it is almost needless to say this is named "Night and Day." Only a bold designer could carry out with success so simple yet complicated a scheme. Another covered basket by the same worker is made with a useful handle that holds fast the lid on double braided cords; it is developed in blues with a row of red birds solemnly hopping about its circumference (see Fig. 9). A different temperament has chosen a blackberry for a motive of form and decoration, the seeds being divided on the black surface by dull green lines while the cover with its brown stem for a handle rising from the green calyx, is all black with a row of large dull black beads pointing the edge of the lid. Turn up the basket and one will find, worked with a much finer stitch, a beautifully drawn black-berry flower in white raffia in the black bottom. This charming surprise, slyly prepared for the observant, serves a useful purpose, for it lightens the dark interior of the basket. One craftswoman decorates her carefully shaped basket with a nice drawing of white mice on a dull olive background (Fig. 2); another chooses the piccotee pink for chief decoration upon the cover of her shallow bowl, the flower is worked out in red and black upon a white background with a conventional border in the same colors upon the side of the basket (Fig. 14). An individual preference is shown in one worker's use of the swale grasses grown in the meadows about Deerfield (see Fig. 8). She combines their varying lines with colored raffia in large card trays and plaques. Or another weaver produces her effects from the use of color and exquisite stitches in a basket all done in greens, with much thought given to the perfection of form. The beauty that lies in the natural corn husk when laid smooth in large

surfaces is shown in still another basket of a large cylindrical form done in shaded indigo blues for background to four poppy stalks, each rising from two spreading gray-green leaves, and bearing big blossoms worked from the many-hued pinks of the crepe-like husks (see Fig. 3).

In choice of shapes the Pocumtuck basket makers cling to the strictly useful and simple forms; a bowl must stand firm on a bottom sufficiently large to sustain it, a cover must fit, a handle must be strong or the jury of society will not give its approval. The stitch chiefly

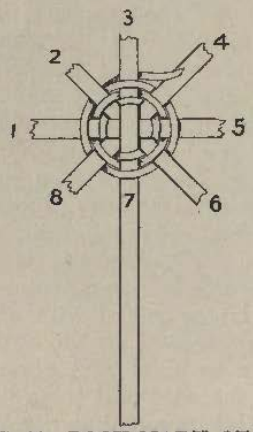


FIG. 94. BOOK MARK OF SPLINT AND WEB WEAVE.

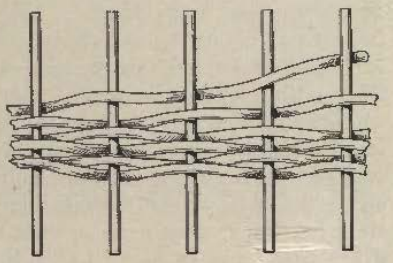


FIG. 95. WEAVING ON EVEN SPOKES.

employed is that which has been dubbed "lazy stitch," and consists of one smooth turn about the coil and a stitch down into the space on the row beneath; the coil is formed of split or whole reeds, different sizes being chosen to fit the desired effect, and sometimes varied from large to small in the development of a single basket. Wrapped spaces are introduced but are not allowed to interfere with structural strength."

Figs. 91, 92, 93 are all of coiled raffia baskets made by the students at Teachers' College. Here variety in shape and design were worked out, each weaver seeking to produce the best possible effect.

CHAPTER XII.

THE WEB WEAVE.

We now come to the most common of all of the basket weaving of civilization, the web. Yet this differs from the checkerwork of the mat weaving only in the fact that the warp elements are rigid and the woof is the pliable material. The result is a series of ridges on the surface. Indeed the division into mat and web weaving is purely arbitrary. Figs. 20, 21, 22, 23 and 24 show the simple stitches.

BOOK MARKS.—A pretty little book-mark may be made with wooden splints, palmetto, rattan or other material for the foundation and with a long weaver of raffia. One long and three short flat splints are required. Place these as shown in Fig. 94. Tuck the end of the raffia weaver under between 8 and 1. Weave over 1, under 2, over 3, under 4, over 5, under 6, over 7, then under 8 and 1, over two

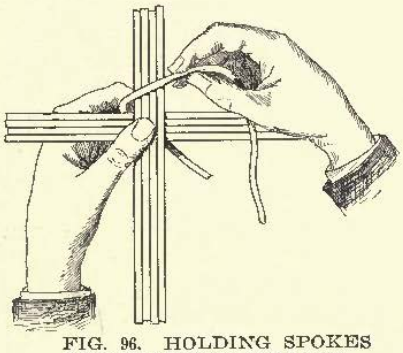


FIG. 96. HOLDING SPOKES AND STARTING WEAVER.

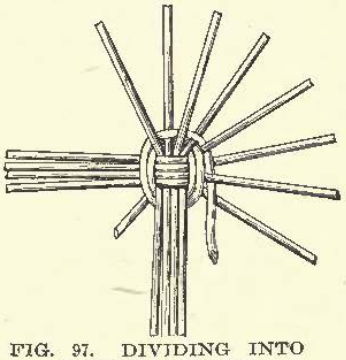


FIG. 97. DIVIDING INTO SINGLE SPOKES.

etc. Next round pass under two, one ahead of the first round, and so on, until five or six rounds have been woven. Tuck the end of the weaver into the part woven so as to hide and firmly fasten it, and when tips of spokes are cut into points a book mark is ready for use.

The following exercises will all be useful for later work.

ODD AND EVEN NUMBER OF SPOKES.—It must never be forgotten that proper web weaving can never be done with an even number of spokes and a single weaver. To have the woof of one over and one under, uniformly, throughout, there must be an odd number of spokes. The odd spoke may be used in starting, or can be inserted later. A little practice will soon teach the better way to the student. Where, however, it is essential to use an even number of spokes for the warp, the effect of a single weaver can be obtained by using two weavers, both starting together, one before and the other behind the same spoke, as shown in Fig. 95. A little care at first will soon render one expert in thus using two weavers.

MAT OR BOTTOM FOR ROUND BASKET.—Take eight

spokes of No. 4 rattan, 14 to 16 inches long, one spoke, 8 or 9 inches long, and a weaver of No. 2 rattan. Hold the eight long spokes as shown in Fig. 96. Then weave under the four to the right, over the four at bottom, under the four at left, and so on, making two complete rounds. When the weaver has been placed across each side of the top set of spokes, separate the spokes as shown in Fig. 97 and begin to weave behind and before each spoke separately. This separation must be done with great care and evenness, as strength and beauty both depend upon the way this is done. Weave one row, and it will be found that the weaver comes behind the same spoke with which we begun in the first row. This would spoil the looks of the basket, so the odd spoke is now inserted as shown in Fig. 98. Sharpen one end and thrust it into the center, underneath. Then turn over and continue

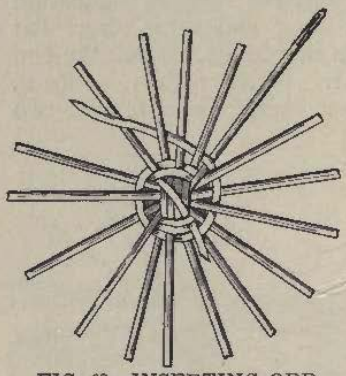


FIG. 98. INSERTING ODD SPOKE.

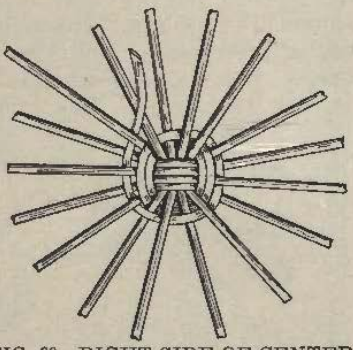


FIG. 99. RIGHT SIDE OF CENTER WITH ODD SPOKE.

to weave as shown in Fig. 99 until the mat or base is the size required. If it is desired to make a mat of this, finish the last row by binding it as overcasting is done. After placing the weaver under one side and over another, it is passed under the last row of weaving just before it reaches the next spoke. Then pass it around that spoke, in front of the next, under the last row of weaving before next spoke, and so on until the whole edge is bound. Now cut spokes to a point and of even length. Soak ends for a few minutes. Then push spoke No. 1 down beside No. 2, leaving an open curve as shown in Fig. 100. Run the spoke down as far as possible, the further the better, as strength is thus added, and the appearance of the basket improved.

OPEN BORDER NO. 2. Another simple border is made, as shown in Figs. 101 and 102, allowing from 1 1-2 inches to 5 or 6, according to taste, for the loop.

In making these borders remember always to soak, for ten or fifteen minutes, the splints to be bent. Then be absolutely accurate in making everything even, as the beauty of every edge depends upon its evenness. It is well to soak a border after it is made, so as to readily allow its being bent into perfect shape. It will then dry as left.

STARTING NEW WEAVER. It will often be necessary, as a

weaver runs out, to start a new one. Leave the end of the last weaver behind a spoke, with about three-quarters of an inch to spare. Cross this with an equal length of the new weaver. (See Fig. 103). Then

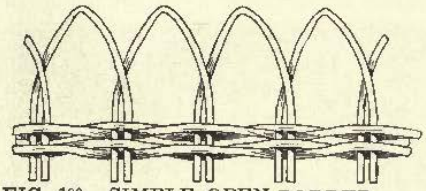


FIG. 100. SIMPLE OPEN BORDER.

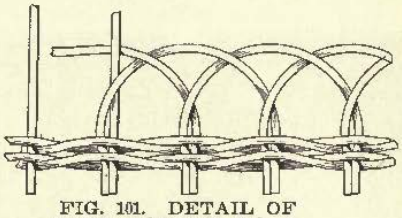


FIG. 101. DETAIL OF OPEN BORDER NO. 2.

proceed. When the basket is completed and dry the unnecessary ends may be cut off.

SPLICING.—If it is desired to hide the point of new with old weaver, the two may be spliced as shown in Fig. 104.

Mr. Neligh informs me that he has found it to be excellent practice to have his pupils make the web weave with raffia. In Fig. 105 are

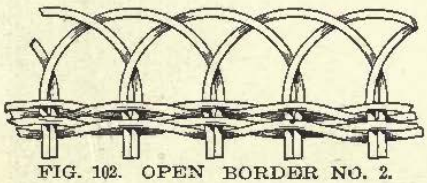


FIG. 102. OPEN BORDER NO. 2.

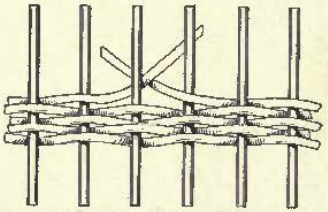


FIG. 103. STARTING NEW WEAVER.

shown some specimens of the work of his pupils. Pins are firmly fastened into a board, the shape the object is to be. The warp strands of raffia are then tightly tied around these pins, and the woof strands then woven as in other work. One may use a needle or not as he de-

FIG. 104. SPLICING WEAVERS.

sires. When the weaving is done the edges are sown together to make the object desired.

SIMPLE BASKETS. The student is now ready to make simple

baskets of the web weave. Use the mat in Fig. 106 as an example. Begin the mat as described in Figs. 96, 97, 98, and 99, finishing off with border as desired.

The basket below the mat is begun in exactly the same way, but after about an inch of the mat is woven draw the weaver tighter. This

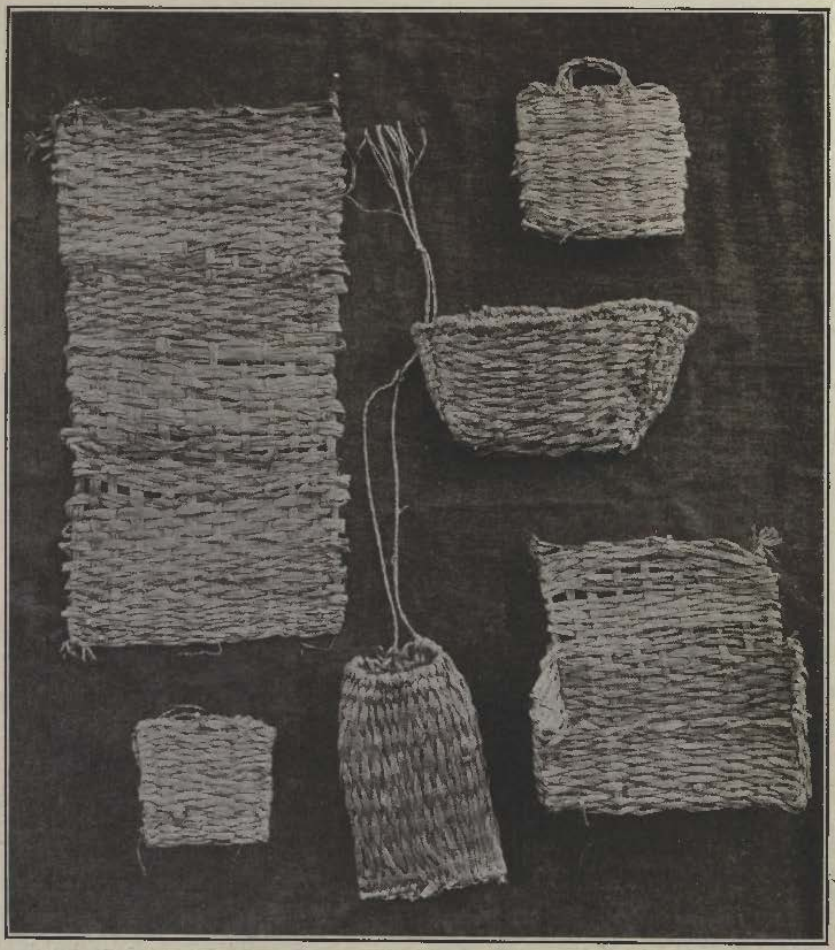


FIG. 105. WEB WEAVING WITH RAFFIA.

slightly curves up the spokes and gives the bowl shape desired. As soon as the basket is as large as required it must be finished off with closed border No. 1, which will be described in the next chapter.

CHAPTER XIII.

INSERTION AND BORDERS.

Before proceeding further with the chapter on Web-Weaving it is well to gain a full knowledge of insertion and borders. These descriptions are taken from Miss Firth's "Cane Basket Work." "In making open borders where it is necessary to run one spoke down

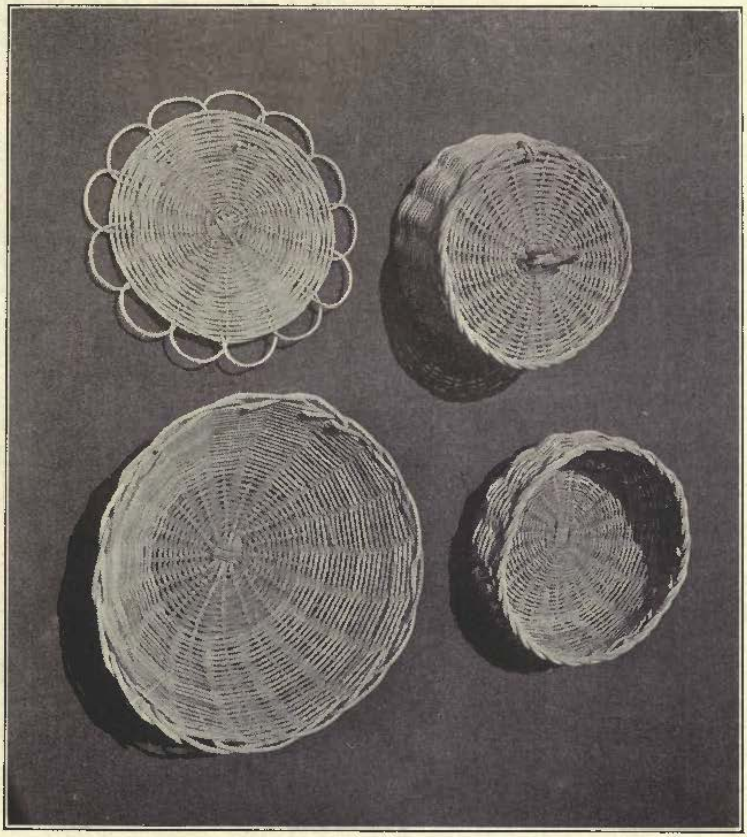


FIG. 106. SIMPLE RATTAN BASKETS, WEB WEAVE.
Work of Students, Teachers' College, New York.

beside another, the awl must be first inserted to open a passage for the extra spoke, and care must be taken to have a smooth end, or the weaving will be pulled out of place. It is also important to have each spoke double the length of the height of the basket, allowing the extra length necessary for the loop at the top. For convenience

spoke may be cut half an inch beyond the length required for the sides, and extra spokes, a little more than double that length, inserted when the weaving is finished. This will give the appearance of three spokes, and if well varnished will not be likely to get out of place. The extra half-inch must not be cut off the first spoke till the others have been inserted.

"As the extra length necessary for each border is given with the directions for working it, one can be easily substituted for another according to taste."

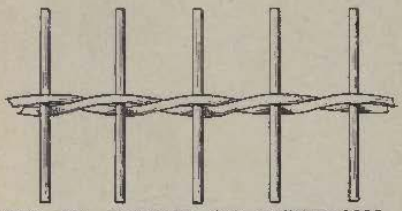


FIG. 107. DETAIL OF INSERTION.

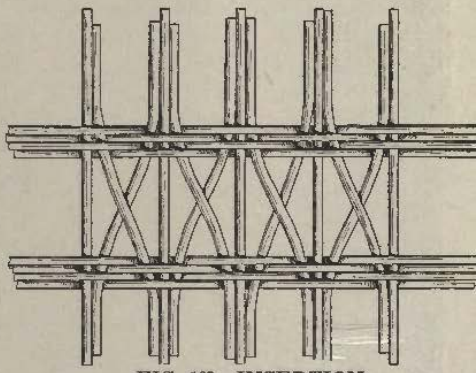


FIG. 108. INSERTION.

Pretty effects are caused by insertion, the details of which will readily be comprehended from Figs. 107 and 108. The spokes of the trellis work of the insertion are finer than the foundation. "This can be used with any border but looks well with open border, Fig. 102. The fine starting on the right hand side of a coarse spoke, crossing the open space to the next on the right, following it inside

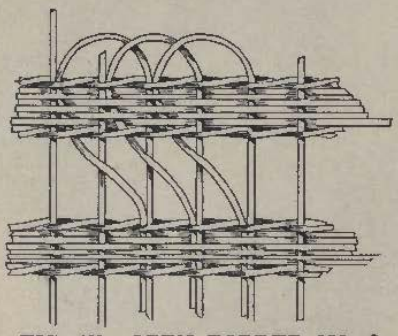


FIG. 109. OPEN BORDER NO. 3.

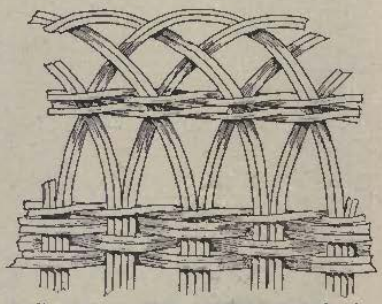


FIG. 110. OPEN BORDER NO. 4.

the bend till the open space is again reached, where it crosses to the left-hand side of the same spoke from which it started."

OPEN BORDER NO. 3.—"This is only another variation of the same prinicple, the spokes being cut about 3 inches longer than double the height needed for the sides of the basket. At about 2 inches from the top weave one row of pairing and fasten off ends. An

inch farther up start another row of pairing, add three rows of single weaving, and finish with another row of pairing. Proceed as for Open Border No. 2 as far as to the insertion, but instead of inserting the spoke in hand beside the same spoke as in the upper part, miss one, and slip it down beside the next. This border needs careful manipu-

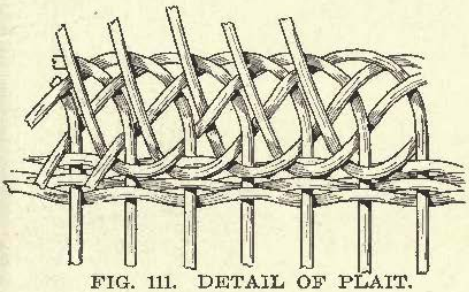


FIG. 111. DETAIL OF PLAIT.

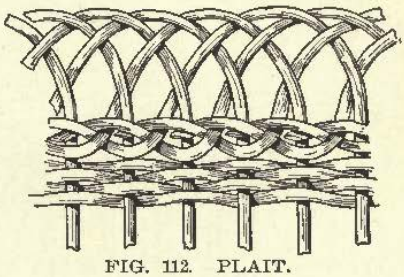


FIG. 112. PLAIT.

lation to keep the spokes in place. It can be varied according to size of basket and taste of worker."

OPEN BORDER NO. 4.—"This border necessitates double spokes, on which two rows of pairing are worked at any desired distance. See Fig. 110. The upper part is done on the same principle as Open Border No. 5."

SINGLE PLAIT.—Each spoke is brought up behind the next, the last being gathered under the first, as shown in Fig. 111. For the next row this movement is reversed, each spoke being passed down behind the next, the last threaded under the first. When the

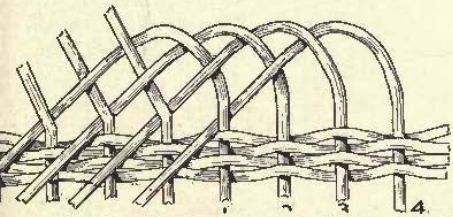


FIG. 113. OPEN BORDER NO. 5.

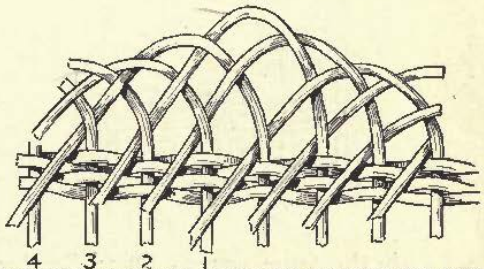


FIG. 114. DETAIL OF LAST THREE SPOKES.

work is thoroughly dry, the protruding ends must be cut off as closely as practicable. See Fig. 112.

DOUBLE PLAIT.—Insert an extra short spoke beside each of those already in use, and proceed with the two spokes together as in single plait.

OPEN BORDER NO. 5.—"Take spoke No. 1, and at about 1 1-2 inches beyond the edge of the basket bend it downwards, passing it behind No. 2, before No. 3 and behind No. 4, leaving the end at the front

of the basket to form the plait, as just described. Take spoke No. 2, and working on the same principle bring it down behind No. 3, before No. 4, and behind No. 5, again leaving the end at the front of the basket. Proceed in this way till all the spokes are down but three (Fig. 113). Take the first of these, bring it down behind the second and before the third. In order to keep the pattern, this must now be threaded from behind under the spoke first used, and spoken of

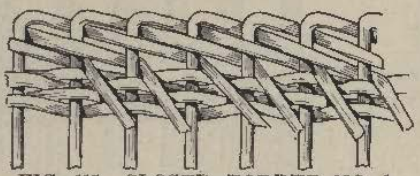


FIG. 115. CLOSED BORDER NO. 1.

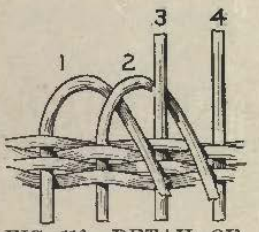


FIG. 116. DETAIL OF BORDER NO. 2.

as spoke No. 1. Two upright spokes are still left. Take the first of these, bring it behind the second and thread it before and behind the two spokes first used. One upright spoke is still left, which must be threaded behind and before and behind the three spokes first used, and will complete the pattern. Finish with plait already described. See Figs. 111 and 112. Length of spokes needed for border—10 inches.

CLOSED BORDER NO. 1.—"This is the same border and worked

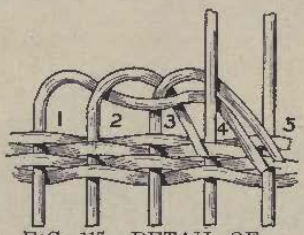


FIG. 117. DETAIL OF CLOSED BORDER NO. 2.

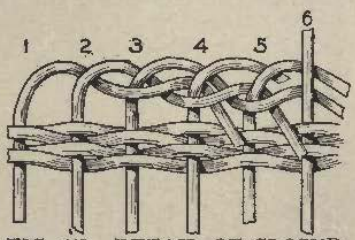


FIG. 118. DETAIL OF CLOSED BORDER NO. 2.

in the same way as Open Border No. 5, the difference being that in this case all the spokes are drawn tightly down except the first three, which are left open to leave room for threading the last three through them. The plait will not be necessary. Length of spokes needed for border—6 inches."

CLOSED BORDER NO. 2.—"See that all the spokes are the same length, and proceed as follows: Lay spoke No. 1 behind spoke No. 2, leaving enough room under it for the insertion of an ordinary slate pencil, in order to have space when necessary for threading through the ends of the last spokes at the finishing of the border. Lay spoke No. 2 behind No. 3 (Fig. 116). Pick up No. 1, place it before No. 3 and behind No. 4. Take No. 3 (which is still up-

right) bringing it down beside No. 1 and behind No. 4 (Fig. 117), making one "pair" of ends turned down. The canes forming these "pairs" must each in turn be kept side by side (the longer of the two being to the right) and held perfectly flat under the thumb till the next "pair" is down. Pick up No. 2, bring it before No. 4 and behind No. 5. Take No. 4 (which is still upright), and bring it beside No. 2

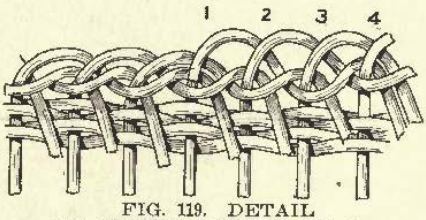


FIG. 119. DETAIL OF CLOSED BORDER NO. 2.

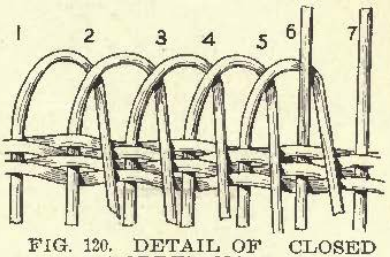


FIG. 120. DETAIL OF CLOSED BORDER NO. 3.

and behind No. 5. This will make a second "pair of ends." The longest of the first pair must now be brought before No. 5 (which is still upright) and behind No. 6 (Fig. 118), No. 5 being brought down beside it as before. The shortest of each pair in turn is left to be cut off at the front when the work is finished, or to be threaded through to the inside and cut off there, making the edge still more substantial. Proceed on this principle till all the upright spokes but one have been brought down, and if correctly worked, there will

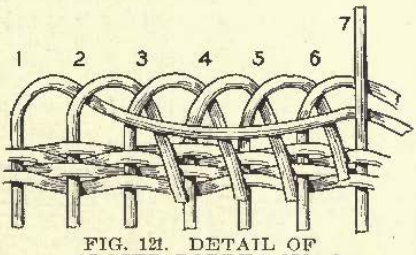


FIG. 121. DETAIL OF CLOSED BORDER NO. 3.

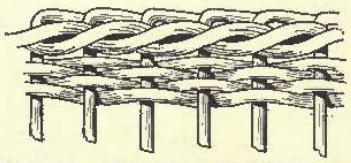


FIG. 122. CLOSED BORDER NO. 3.

always be two pairs of ends after the first pair is started, but never more than two. Take the longer of the first pair, and slip it behind and under spoke No. 1, the last upright spoke still left being brought down beside it in the usual way, and passed under the same spoke. Two pairs of ends will still be left. Take the longest of the first pair, lay it in front of and beside spoke No. 1 (the spoke first used, and which may be marked by a piece of cotton till the worker becomes familiar with the border), bringing it out to the front under spoke No. 2. Take the longest end of the last pair, bring it in front of and beside spoke No. 2, passing it under No. 3 and the spoke in

front of it. Each spoke must be brought to the front immediately above the weaving. Length of spokes needed—8 inches."

CLOSED BORDER NO. 3.—"Before attempting this border, the worker will do well to work out No. 2, until familiar with its principles, which are much the same. No. 2 is the simplest of this class; No. 3 as large as would be needed for any ordinary basket;

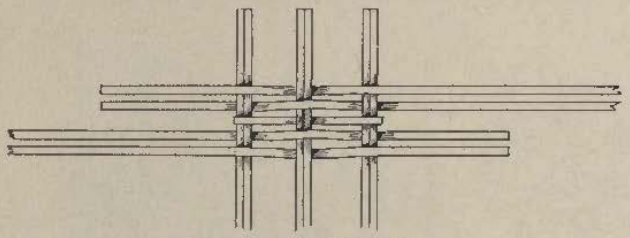


FIG. 123. DETAIL OF OVAL BASE.

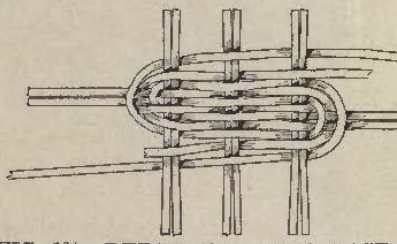


FIG. 124. DETAIL OF OVAL BASE.

but the same kind of border may be worked with three, or four, or more, spokes as easily as with two or five, always remembering that the number of single spokes turned down at the first determines the number of pairs, and that these must never vary till not one upright spoke is left. In Border No. 3 five spokes are at first turned down, and after the pairs are started there will always be five to work from till the end is reached.

"Lay spoke No. 1 behind No. 2; No. 2 behind No. 3; No. 3 behind

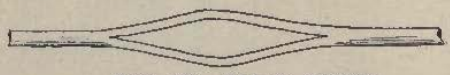


FIG. 125. SPLIT SPOKE FOR ROUND BASE.

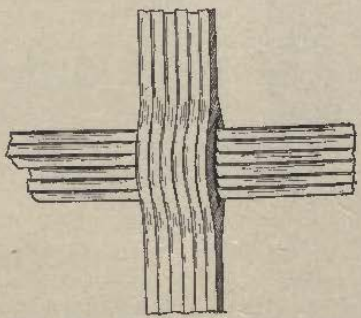


FIG. 126. SPOKES THREADED FOR ROUND BASE.

No. 4; No. 4 behind No. 5; No. 5 behind No. 6 (Fig. 120). Pick up No. 1 and lay it behind No. 7, bringing No. 6 (which is still upright) down beside it (Fig. 121). Pick up No. 2, lay it down behind No. 8, bringing No. 7 (which is still upright) down beside it. Proceed thus till all the spokes are down but one. Take the longest spoke of the first of the five pairs left, bringing it behind and under spoke No. 1, the last upright spoke being brought down beside it.

Five pairs are still left. Take the longest of the first pair, bringing it beside and in front of spoke No. 1 and under spoke No. 2. Take the longest of the first of the four pairs left, bringing it beside and in front of spoke No. 2 and under spoke No. 3. In threading through these ends, it must be remembered that the short spokes come out immediately above the weaving and under the roll of spokes which forms the edge. Take the longest of the first of the three pairs left, bringing it beside and in front of spoke No. 3, and under spoke No.

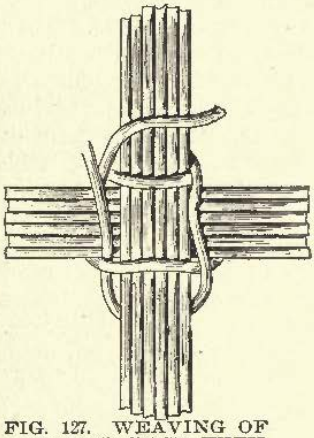


FIG. 127. WEAVING OF ROUND BASE WITH TWO WEAVERS.

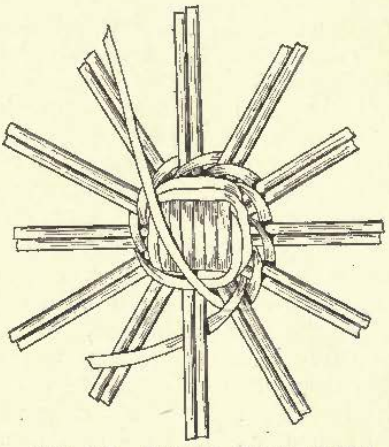


FIG. 128. ROUND BASE WITH SPOKES IN PAIRS.

4. Take the longest of the first of the two pairs left, bringing it beside and in front of spoke No. 4 and under spoke No. 5. Take the long spoke still left, bringing it beside and in front of spoke No. 5 and under spoke No. 6. If the two spokes which lie together have been kept lying flat on the edge of the weaving, the border will look even and handsome (Fig. 122). Length of spokes required—10 inches.

CHAPTER XIV.

MORE ABOUT BASES.

In her books Miss Firth gives several methods of making bases.

OVAL BASE. A simple oval base may be made as follows. Take 4 lengths, No. 4 rattan, 24 inches long, 6 lengths, No. 4, 6 inches long and one length, 3 inches long. Place the six short pieces for the width and the long pieces as shown in Fig. 123. The two lower spokes must be placed on the table, and the short ones placed across them in pairs, at intervals of an inch. The lower of these two spokes must be UNDER the center pair, and OVER the pair at each end. The upper spoke must be the reverse of the lower, the short piece being placed above that in the same order as the lower spoke. When the base is finished it will be seen that this short piece forms a middle around which the four spokes are woven. The other two long spokes must be placed in a position exactly reverse to the two first, as in Fig. 124. They must then be pressed closely together, the left hand holding them firmly in their place, while the right weaves with the inside spoke of the two which first used, passing it over the two short ends of the second pair of long spokes, and under and over and under the three short pairs. The outside spoke must follow, but in reverse order. The second pair of long spokes must be treated in exactly the same way as the first.

ROUND BASE WITH DOUBLE WEAVERS. Take 12 spokes of No. 4 rattan, six inches long, and a long weaver of No. 1 rattan. In six of the twelve spokes, make a split in the center about an inch long as shown Fig. 125. Then thread the six unsplit spokes through the split ones. (Fig. 126). Keep flat and cross exactly in center. Take weaver, double it, leaving one end several inches longer than the other. Slip loop of weaver over six of the split spokes, bringing under part of weaver over, and top part under the next six spokes (Fig. 127). Repeat this as described with Fig. 95 until three rounds are made. Be sure that the under weaver is always brought to the top before the top one is taken underneath, to prevent the weavers getting twisted. Now separate spokes into sets of two, (Fig. 128), pulling the spokes well apart to allow room for the weavers to be well pushed down. Then pair around the double spokes for three rounds, after which separate each spoke and pair as in Fig. 129.

ROUND BASE WITH SINGLE WEAVER. A round base with a single instead of a double weaver may be made by the insertion of an extra spoke after the dividing of the spokes begins.

OBLONG OVAL BASE. Take 13 spokes of No. 4 rattan, 5 inches long, and 5 spokes of No. 4 rattan, 12 inches long. Split the 13 spokes in center as before described, and thread them on the 5 spokes as shown in Fig. 130. Put the odd spoke in center of the five. Then allowing half an inch between the spokes, place them as shown in Fig.

130, but with two spokes together at each end. Double the weaver and place the loop over the double side spokes. Take the underneath part of the weaver and weave down the side, then go back and take upper part of weaver and weave beside it, counting double spokes at end as one spoke.

Weave holding the base flat on the table, and always from left to right. To do the end take up the base in the left hand, grasping the weavers where they pass the double side spokes. Take the weaver from underneath and bring tightly across the five long spokes, place behind the double side spokes, then put the base flat on the table and weave down the side. Go back, taking up the base again, and take the top weaver behind the five spokes, lay down the base, then weave down the side. Repeat this until you have two weavers crossing the five spokes top and bottom and on either side. Divide the five spokes into 2-1-2. (See Fig. 131). Pair around these, but still weave down the side. When both ends have been divided in this way, take each spoke singly, beginning with the double side spokes,

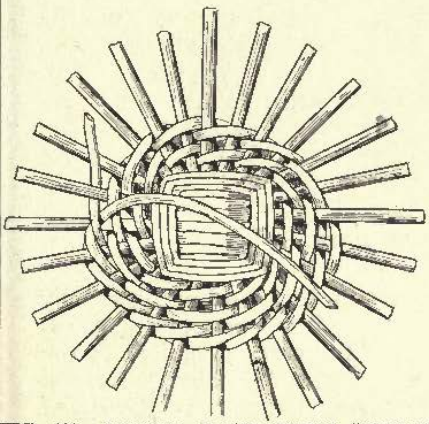


FIG. 129. ROUND BASE WITH SPOKES SEPARATED.

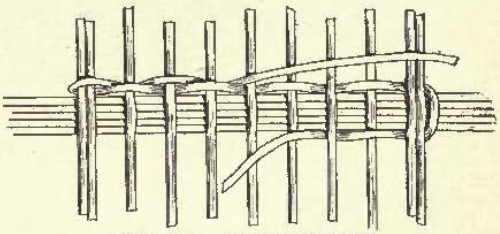


FIG. 130. COMMENCING OBLONG OVAL BASE.

and pair around each of the nine spokes at either end, but still only weave down the sides.

When both ends are done, continue weaving straight round with first one weaver and then the other, but not pairing.

While doing the base, draw the weaver firmly towards the right, and when doing the ends bring the weaver firmly down between the spokes, which must be drawn as far apart as possible to admit of this being done efficiently. In a well-made base the weaving is always drawn down so firmly that the spokes cannot be seen in between.

To get the oval bases of the size required, first take the measurement across the basket. If this is 4 1-2 inches, and the length is to be 8 inches, the spokes across would have to be placed within a distance of 6 inches, measuring from each lot of double spokes at the end.

The reason of this is, that enough space must be left at either end to allow 2 inches of weaving, as in a base 4 1-2 inches across there would be 2 inches of weaving on either side, allowing one-half inch for the five spokes down the center.

If this rule is followed, the right size can always be counted on, and in the lids of oval baskets it is particularly necessary that the size should be assured before starting.

OVAL BASE. Another method of making an oval base is to take six 5-inch spokes, four 7-inch spokes and one 4-inch spoke, all of No. 4 rattan, with three weavers of No. 2 rattan. Split the six five inch spokes as described in Fig. 125. Thread them on the four seven-inch and the one four-inch spokes, the short one in the center, leaving about half an inch between each of the six. The six spokes are held horizontally, and the five are vertical. Start a weaver, back of the vertical spokes and lying along the uppermost horizonal spoke, with the end toward the right. Bring it around in front of the vertical spokes (above the upper horizontal one), then back and down diagonally to the left, coming out below the upper horizontal spoke. Here it is

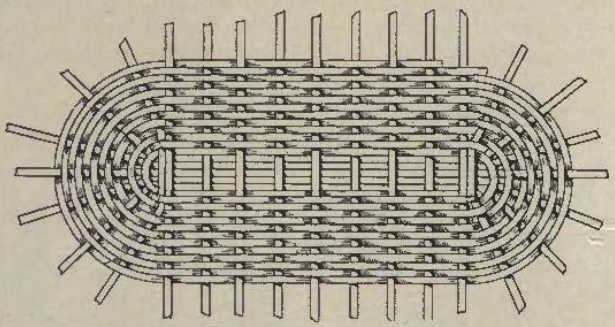


FIG. 131. OBLONG OVAL BASE.

brought around in front of the vertical group, back and up diagonally to the left of the vertical spokes and above the first horizontal one. It is then brought diagonally down in front of the vertical spokes, to the right of them and just above the second horizontal spoke. Next it crosses diagonally down and back of the vertical spokes, to the left of them and below the second horizontal spoke, where it is brought over the vertical ones, back and up diagonally to the left of the vertical spokes, and just above the second horizontal one as shown in Fig. 132. The same process binds the other four horizontal spokes; making an ornamental cross effect over each one, on the inside of the basket as seen in Fig. 133. After all six horizontal spokes have been bound, the spokes are separated and the weaving begins, and is continued until the size desired is attained.

BASE OF TWINED WEAVING WITH INSERTED CORNERS. A base of fine rattan or raffia twined basket, having a peculiar way of inserting the spokes at each of the four corners, is shown in Fig. 134. The rubber bands holding three groups of spokes make it more convenient for the maker to manipulate the numerous spokes, as each time around a spoke is inserted at its proper place. When a group is twined with two strands of raffia the rubber band is slipped off the next group and snapped around the set of spokes just finished and so on. Any number of spokes may be inserted according to the size of the base desired.

Take 12 spokes No. 1 rattan 10 inches long, 4 short strands raffia

in red, natural and green, and add spokes of rattan and weavers of raffia as desired.

Before beginning the work see that the rattan is well soaked in warm water. In fact this basket should be frequently placed under water and the twinings pushed closely toward the center. If the work is tightly done it may be made practically water tight.

Cross five spokes at right angles to five other spokes and placing a raffia strand across the laid spokes, diagonally bring the strand under neath to the beginning of the diagonal crossing where it is securely twisted. Now cross over to another angle and let one of the halves of raffia pass underneath and the other across the top spokes to the opposite corner diagonally—twisting again. This gives a cross of raffia over the grouped spokes.

Now begin to twine the two strands of raffia from the outside in

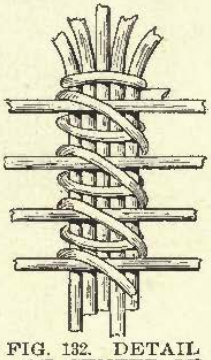


FIG. 132. DETAIL OF CENTER OF OVAL BASE.

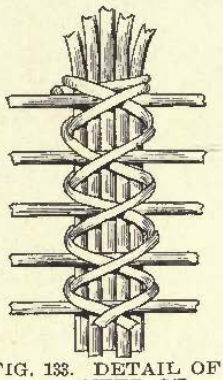


FIG. 133. DETAIL OF CENTER OF OVAL BASE.

toward the center, over one, under one, carefully impacking each stitch as the twist is made. Fig. 135 Page 126 of "Indian Basketry" shows method of this twined effect.

Weave around three or four times with uncolored raffia and then bending one of the extra spokes of rattan in half lay it snugly at the bend in the angle of the crossed spokes. It thus makes two new spokes. Twine the raffia over each of the two new spokes and snap a rubber band over the first group of six. Care must be exercised so that the crossed spokes always lie flat until the base is well started. When the twining crosses to the next angle another spoke is bent in half and again fastened to its place. This group is now securely held with another rubber band and thus continue with the remaining spokes, letting the raffia continue for a stitch or two beyond a corner before changing to a differently colored strand.

Looping the colored raffia over a spoke and separating each end, begin to twine with both colored and uncolored until a corner is reached; now drop and clip the raffia not needed and twine in the corner spoke with the colored raffia. Twine around as many times as this colored raffia lasts.

As the work increases extra spokes must be inserted, and these are cut the length of the angle where they are to be placed. When

the base is the desired diameter stop adding spokes and gather three of the grouped spokes into one and then shape the basket as desired.

Any shaped basket may be formed from this base, four sided, round or flat. Finish off by folding down the ends of the spokes and add a coil of three or four rattans the length of the circumference of the open-

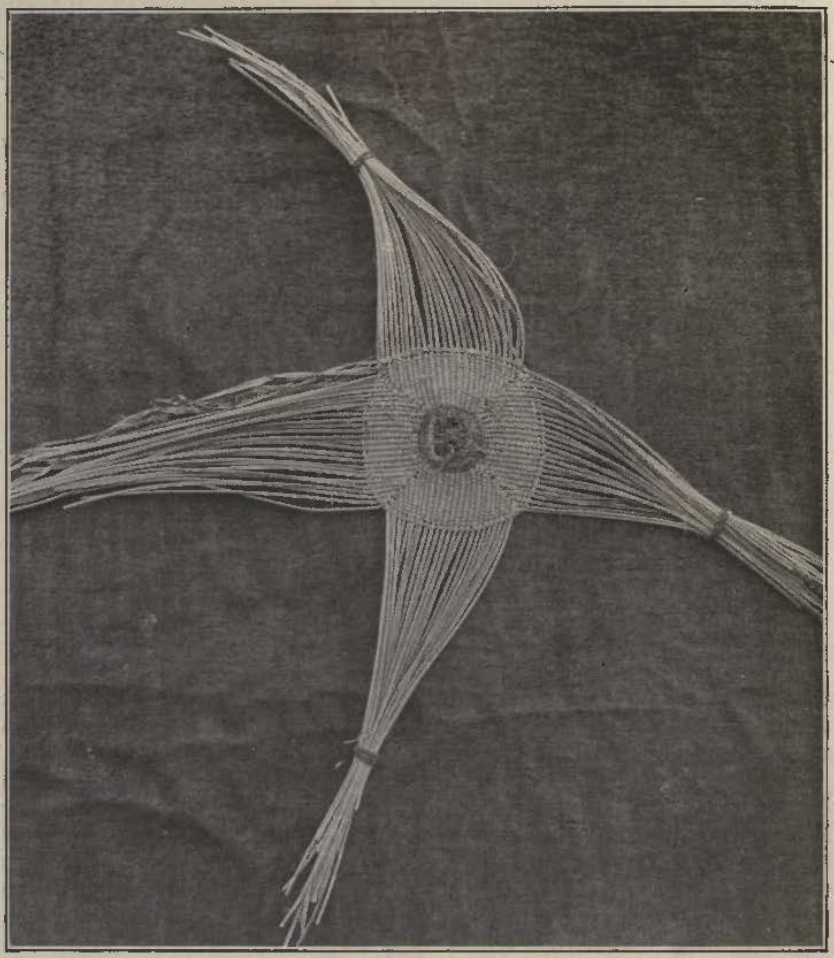


FIG. 134. BASE OF TWINED WEAVING WITH INSERTED CORNERS.

ing and with the raffia sew over and over edge, all the way around, securely fastening the ends by hiding them under three or four of the twined stitches.

This basket is closely allied to the Alaskan baskets, but is unique in its method of enlarging For these directions I am indebted to Mrs. John P. S. Neligh, of the Industrial School, Columbus, Ga.

CHAPTER XV.

WEB WEAVING CONTINUED.

We now return to the making of baskets by the web weave. The two baskets on the right of Fig. 106 are now to be described. For the upper one take eight spokes of No. 4 rattan 14 inches long, and weavers of No. 2 rattan. Start the base as described in either Fig. 96 or Fig. 125. Make the base the size desired, then turn up the foundation spokes, weave the sides and finish off with one of the closed borders.

The lid is made in exactly the same way as the base, finishing the border with the rope twist.

The bottom basket to the right is made in the same manner.

Fig. 135 is of more simple web weave baskets made by the students at Teachers College. The one to the left and the upper one are both made of No. 2 rattan for both spokes and weaver. Begin the base as already described. Turn up foundation spokes for the sides, weave as high as desired and finish off with closed border No. 2.

The covered basket with the handle is equally easy to make. Begin as before described, turn up, as soon as base is as large as required, taking care that the angle of the sides is evenly preserved. Finish with simple closed border. Make the lid in like fashion. The handle is of three long strands of rattan, doubled and twisted while pliable.

A pretty basket is shown in Fig. 136. For the base take six spokes of No. 2 rattan, about two and a half inches long. Make base as described in Figs. 96 or 125. When woven up to the end of spokes take 15 pieces of finer rattan, and thrust into base by the side of the spokes, inserting the extra ones so as to have all the spokes as near equidistant as possible. Now soak for a few minutes. When pliable bend up for sides, weave plait of straw or any other material either made or purchased until the sides are as high as desired.

Then proceed to make closed border No. 1 as described in Fig. 115. The lid is made in same way as base or using both splint and plait for weavers. To fasten lid and basket together take piece of finest rattan, loop through lid and border of basket, then twist, making an open loop for handle about an inch across. Then thread one end of handle splint through basket and lid one way and the other way. Where they meet tuck in ends and basket is complete.

WEB WOVEN BIRD NEST. Take 24 spokes of No. 2 rattan for foundation. Make base, drawing weavers tightly, so that bottom is convex. When about 6 inches across, turn up foundation spokes for sides, and proceed to weave as before, drawing weavers tight so that the sides close in towards the top. When the side is about an inch and a half high cut short two of the spokes and turn in as for a closed border. Then continue to weave, leaving open space where these spokes were, turning the weaver back around the spoke on each side of the open space. Weave up in this way for about an inch and a quarter, then bridge the space by bending the two end spokes

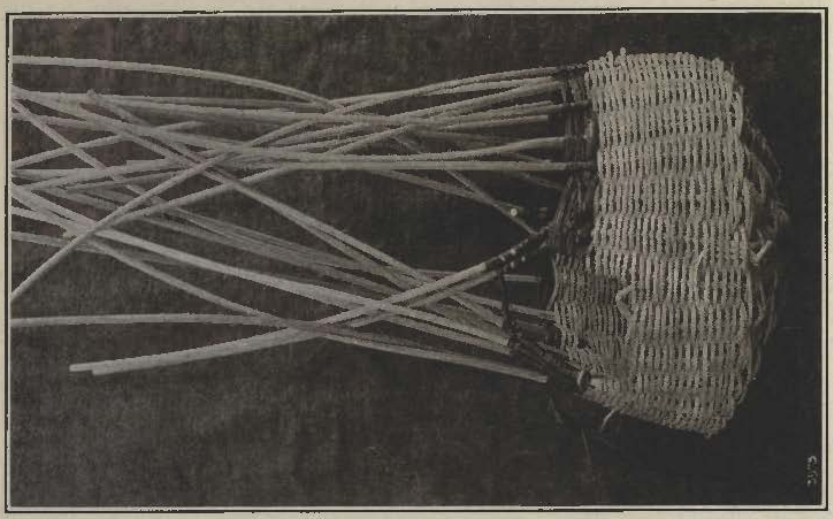


FIG. 137. WEB WOVEN BIRD NEST.

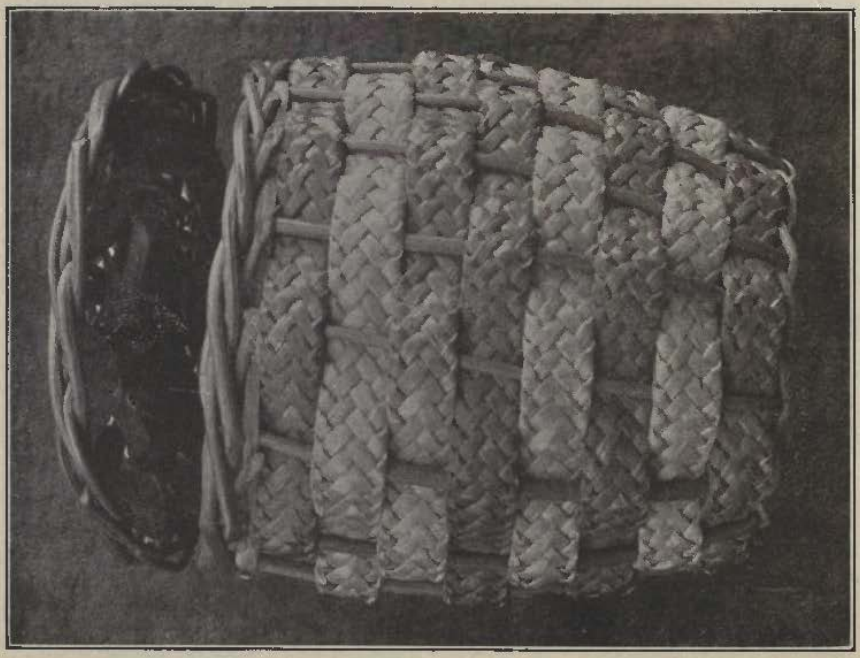


FIG. 136. RATTAN BASKET WITH PLAITED STRAW FOR WEAVER.

over the space. Now rapidly draw the top together, working in two of the spokes instead of one, until it is impossible to weave higher. Leave the ends of the spokes irregular so as to let the top of the nest appear like a bundle of twigs. Place in a tree, and do not be surprised if the following nesting time a pair of birds takes possession.

BASKET WITH FANCY BASE. Fig. 138 shows an unfinished basket from which, however, the student may gain a few ideas. In making the photograph I failed to notice that it was somewhat out of shape. The base is made as any ordinary mat, inserting new spokes as desired, until it is about 8 inches in diameter, woven so tightly that the bottom is convex. Now insert double spokes for fancy base and weave about an inch and a quarter finishing it by any form of closed border desired.

Now use fancy plaited straw as a weaver for the sides and weave as high as desired, say five inches. Finish with a simple border as shown to the left, or as desired.

Fig. 139 shows two small wood splint baskets of a type much sold in Europe. The foundation spokes may be of palmetto, wood splints or rattan, and twelve, fourteen or sixteen in number. A. Fig. 139 shows the arrangement of the base. First lay the spokes star shape as shown. Then sew around edges with a piece of thread to hold them in place. Bend spokes up for sides, taking care to do it evenly. If an even number of spokes is kept, the weaving must proceed as described with Fig. 95. If an extra odd spoke is introduced a single weaver will do.

When the basket is as high as desired turn down and tuck on the inside of basket all the spokes. Then wrap with a broader splint, like overcasting, thus making a secure binding.

The handle is formed by thrusting a piece of rattan the size desired, with a wide splint above it, down to the base, through the weaving, and then wrapping as described for the binding, taking care to tuck the ends in as far as possible. Some prefer to make the handle before binding the top, using a weaver long enough to wrap both handle and top. This adds strength and gives fewer ends to care for.

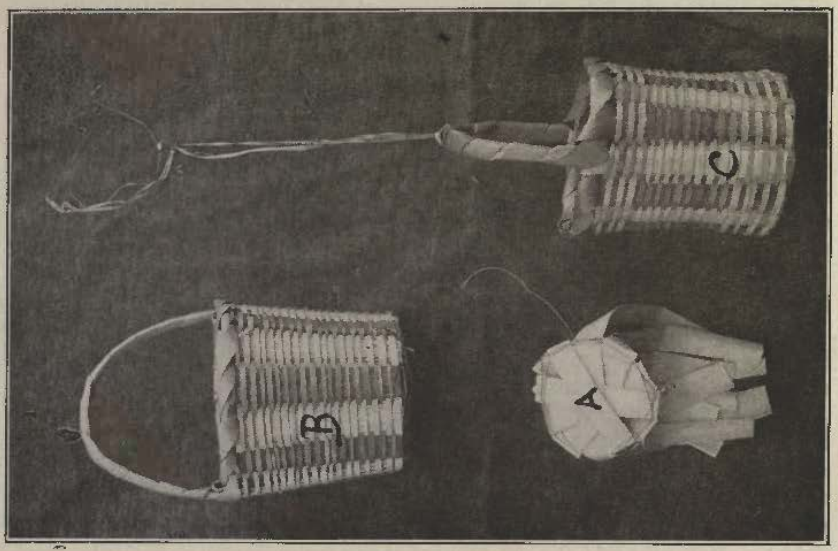


FIG. 139. SPLINT WEB WEAVE.

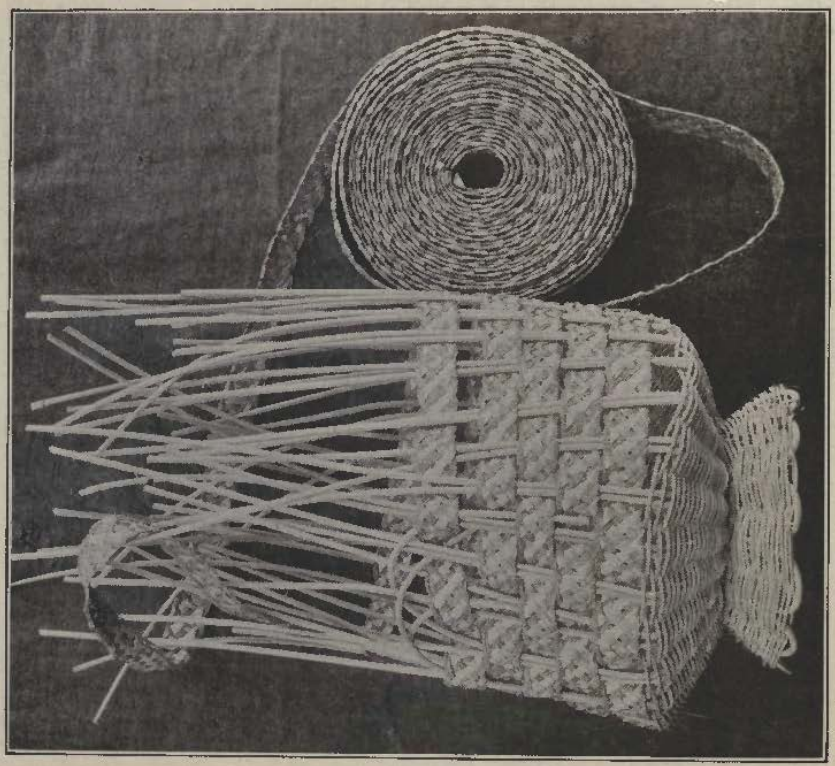


FIG. 138. BASKET WITH FANCY BASE.

CHAPTER XVI.

SPLINT AND SWEET GRASS BASKETS.

These are most popular baskets, hence it is deemed appropriate to give full particulars as to the methods of weaving a variety of those generally preferred. The photographs were all made from the assortment of the Hyde Exploring Expedition, 26 West 23rd Street, New York, where Miss Marie Toxuse, an Abenaki Indian, is engaged as weaver and teacher.

In these descriptions it will be seen that the mat, plait, twined and web weave are all utilized. Most of the baskets are easy to make and any ordinary student can make them from the descriptions given.

In starting the base of a splint basket place a small board, on which the work is to be done, on the lap. Then, one by one, place the splints in order as shown in Fig. 140, taking care that they are equidistant and regular at the edges.

Now, take the weaver in the right hand, and, thrusting the end between two of the spokes, hold it firmly with the left hand (see Fig. 141), while with the right the weaver is worked in and out of the spokes, pulling it as tightly as possible. Exercise great care in keeping the spokes firmly pressed upon the board, or they will be pulled out of place.

As soon as the weaver has been taken around once it will be necessary (in order to have the weaver go under the spokes in the second round, over which it went in the first round), to take the weaver over two spokes as shown in Fig. 142. This must be done, each time round. When as many rounds are woven as necessary, take each spoke and bend it up to form the foundation for the sides, when it will appear as Fig. 143, and is now ready for the weaving of the sides.

SPLINT BASKETS.—Fig. 15 contains five articles made solely of splints, except the book mark. This is composed of one spoke, ten inches long, and seven others about 2 1-2 inches long. All the small spokes are cut so as to be very narrow in the center and widen out towards the edge. They are placed across each other in a circle, held firmly, and bound with three or four rows of simple web weaving. Then using twined weaving the spokes are covered as much as required. The stitch is finished off by tying the sweet grass. The ends of the spokes may be cut as desired, either rounded, pointed or V shaped.

For the napkin ring take one wood splint 7-8-inch wide, and two 3-8-inch wide. Then take a narrow wood splint weaver and web weave the three splints together, twining the weaver around the edges and returning from side to side. Cut the broad splints the length required, and, as the weaving continues, bend into the ring form, tuck in the edges of the foundation splints and complete the weaving. Now take a 7-8-inch wide colored splint, and thread on the

FIG. 141. INSERTING WEAVER IN SPLINT BASE.

outside of the ring, under three and over two, making a bow by lacing back and forth and tucking in the end. The spiral ornamentation for the edges is made by taking a 3-8-inch wide splint, colored, thrusting it under one of the weavers, then wrapping around the spiral shape, missing one weaver, drawing under the next, twisting again, missing a weaver, and twisting again over the next and so on.

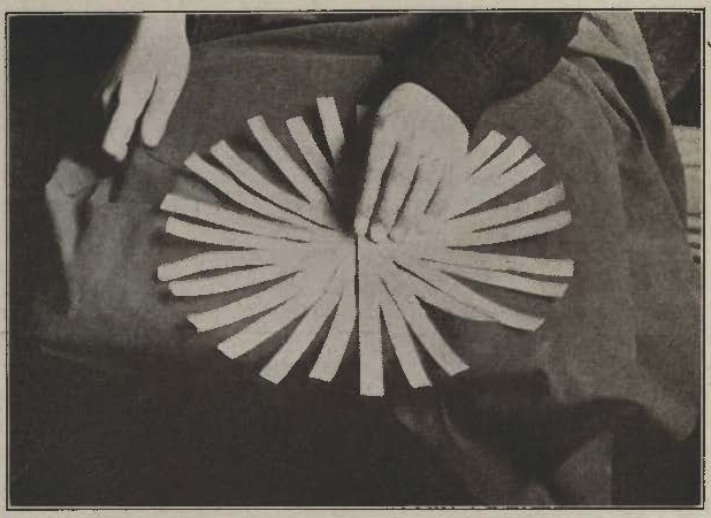
The diagonal mat weave basket in the left corner is made as is the one described elsewhere. Two colors of splints are used and the handles are of plaited sweet grass, sewed with strong thread to the sides.

The square basket is simple mat weave for the bottom, and web weave for the sides and top, the edges being strengthened by turning in the foundation spokes, then binding strong splints around the rims.

For the hand basket take one splint 5-8-inch wide and two 1-2-inch wide, and about 3 feet long. Then 15 splints about 26 inches long and 1-2-inch wide. Make of these a mat foundation, putting the three splints lengthwise and the 15 across at right angles. Now turn up for sides and web weave with splints any size smaller than 1-8-inch. When within three and a half inches of the top, web weave with four rows of splints (or rather, two double rows), the splints to be 6-8 of an inch wide. Curl a third splint into each double row as described immediately for Fig. 4. Then finish with one row of narrow splint, strengthen the rim inside with stout splint, and outside with sweet grass and bind with a narrow splint. The handles are of splints 1-8-inch wide twisted with narrower splint and tied to the edge of the basket.

CLOTHES HAMPER OF SPLINTS.—Fig. 4 is a large fancy basket of splints, made by Abenaki Indians of Pierreville, Canada, and presented to Mr. T. F. Barnes, editor "The Papoose," New York City. It is 2 feet 9 inches in height, 1 foot 8 inches in diameter at the top and four or five inches less at the bottom. The base is of extra strong wood splints, arranged as Fig. 140, and the side splints are also extra strong. The first nine rows of weaving on the sides are of doubled splints, 3-4 of an inch wide. The under of these two splints is woven under one and over one of the side spokes as in all ordinary weaving, but the upper splint, in taking the "over" stitch, instead of being pulled tight, is left looped. The arrangement of the loops is such that the loops of the second row come over the spokes of the row beneath. Thus the loops alternate in the rows.

Following this set of nine rows of looped stitches is a belt of weave made with ordinary white splints, about 1-8-inch wide, under two and over two. The next belt is of one splint, colored, nearly an inch and a half wide. Then another belt of narrow white splints. Now a belt of six splints of three colors, two of green, two red, two purple. (I am not commending the color scheme, which is simply hideous, in thus particularizing the colors.) In each of these three pairs of rows, three splints are used instead of two. The use of the extra third splint is to get the "curl" shown in the design. In inserting the weavers put in two for the bottom row and follow with one in the row above, so that it alternates with the lower one over the foundation spokes. When the upper weaver of the lower row comes from under the spoke, curl it back and up under the next spoke in the row above. Now curl it down and under the next spoke in the bot-



F.G. 140. BEGINNING BASE OF SPLINT BASKET.
Courtesy Hyde Exploring Expedition, New York.

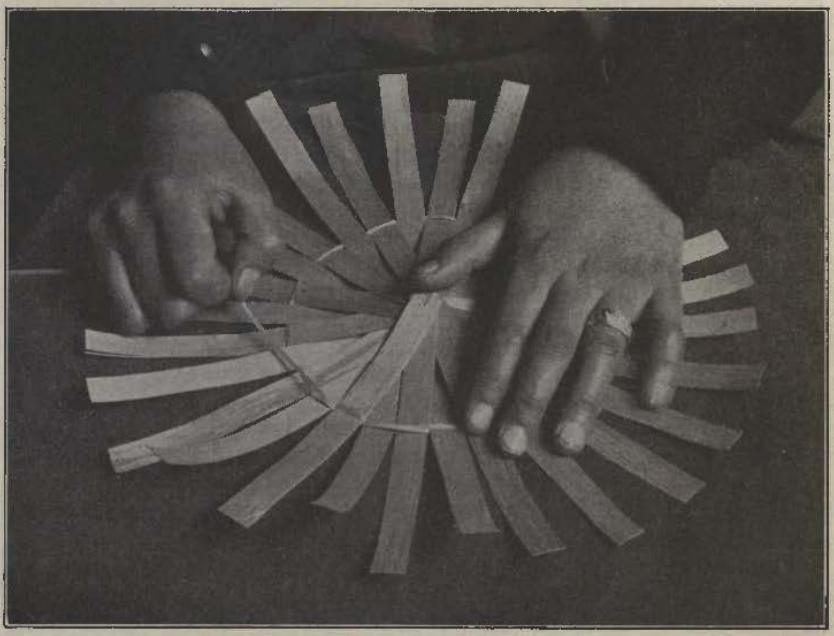


FIG. 142. JUMPING TWO SPOKES.

tom row, and so on until the complete round is made. Each pair of rows is woven in like manner.

This belt of "curled" weave is followed by weaving belts above it, similar to those below it, as shown by the design. At the top, four rows of plain simple weaving gives firmness. Then the spoke splints are bent at right angles and six or seven rows of weaving taken upon this portion, which thus forms a kind of shelf or rim. The foundation splints are now turned upright again and a row of the "loop" weave with inch-wide splints made, after which it is finished off with three strong splints inside and one colored one outside, wrapped around and bound on with small white splints. The finishing border is of these same splints wound under and over and looped as will clearly be seen in the design.

The lid is composed (as is the base) of splints that broaden as they reach the periphery. Two or three rows of narrow weavers fix the spokes in position. Two rows of loop weave and then the spokes are curved down, and eleven or twelve rows of narrow splint weave taken. Then the splints are bent out and split, each splint thus forming two. One single row of plain weave with a wide splint and five of loop weave, followed with three narrow splint weave, and the spokes are turned under, and, when the handle is wrapped on the top, the lid is complete.

SWEET GRASS FAN.—Fig. 5 is a sweet grass and splint foundation fan. The splints are cut so as to be very narrow in the center and widen rapidly towards the edge. This can readily be seen by looking at the fan in Fig. 5. Place the splints crossed for the center, as the simple splints of Fig. 140. Then with a single strand weave under and over for five or six rows. Now take two strands and use the "twined" weave or pairing, as described in Figs. 22 and 134. The sweet grass must be dampened and pressed closely into position as each row is woven. When within an inch of the edge weave two or three rows with plain white narrow splint. Now trim the foundation spokes as shown in Fig. 5, and, taking narrow splint weavers loop the border, fastening it to the last row of splint weave, which has been well anchored by fastening it below. For a handle, take a stout wooden splint, loop, and tuck well under the sweet grass down one of the foundation spokes. Upon this place lengths of sweet grass. Then wrap tightly as shown in Fig. 5, fastening off the end by tightly wrapping and tucking in.

SPLINT AND SWEET GRASS BASKETS.—In Fig. 6 four baskets of splints and sweet grass are shown. In the bottom one to the left the base is composed of simple mat foundation, five splints each way. These are turned up for the sides and twined weaving of sweet grass composes the woof. When the desired height is attained, the spokes are turned down and tucked in. Then the rim is strengthened inside with a colored splint, and outside with a row of sweet grass, both of which are bound on with a narrow splint as is clearly seen in the engraving. The lid is made of five broad and two narrow splints, the latter at the sides. On these are woven twined rows of sweet grass, and the edges bound as is the rim of the basket. The former is affixed to the latter by lacing the binding of the basket to that of the lid. A small wrapped loop is affixed to both basket and lid.

The only difference between the basket at the bottom to the

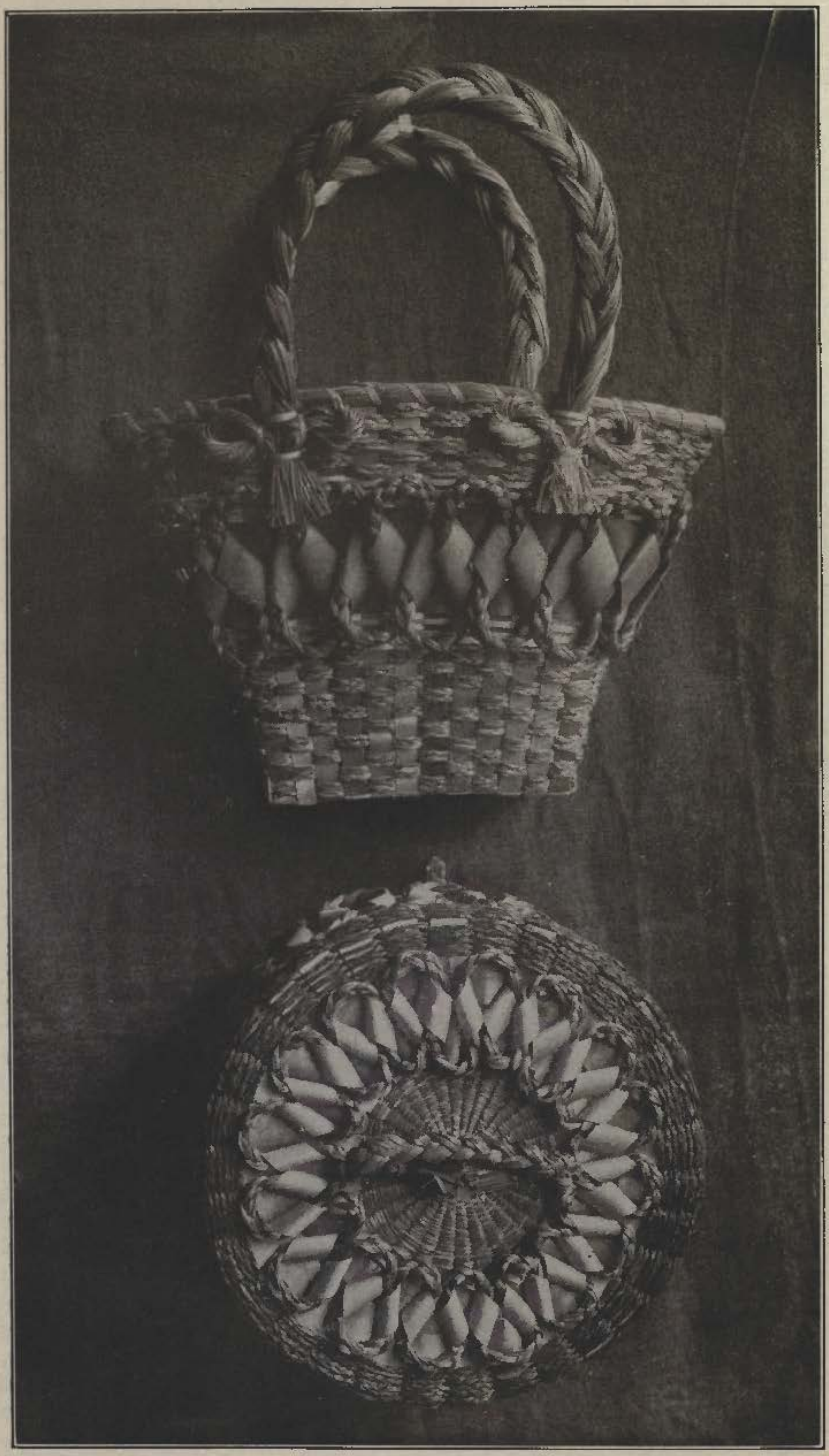


FIG. 144. BASKETS OF SPLINT AND SWEET GRASS.
Courtesy Hyde Exploring Expedition, New York.

right and the one just described is that after a few rows of sweet grass are twined into the sides one wide and two narrow splints are introduced. The wide splint is woven, one under, one over, as in all ordinary web weaving. But the two small splints—which together are about 1-8 of an inch wider than the broad splint on which they rest—are crossed from bottom to top under every other spoke, forming a little nipple or elevation between the spokes. Then more twined sweet grass completes the sides, which are bound as before described. The lid is made in like manner.

The round basket of Fig. 6 is composed of even splints about half-an-inch wide and laid as shown in Fig. 140.

Three or four rows of simple web weave at the outer edge of the base tighten the spokes. They are then turned up for the sides and

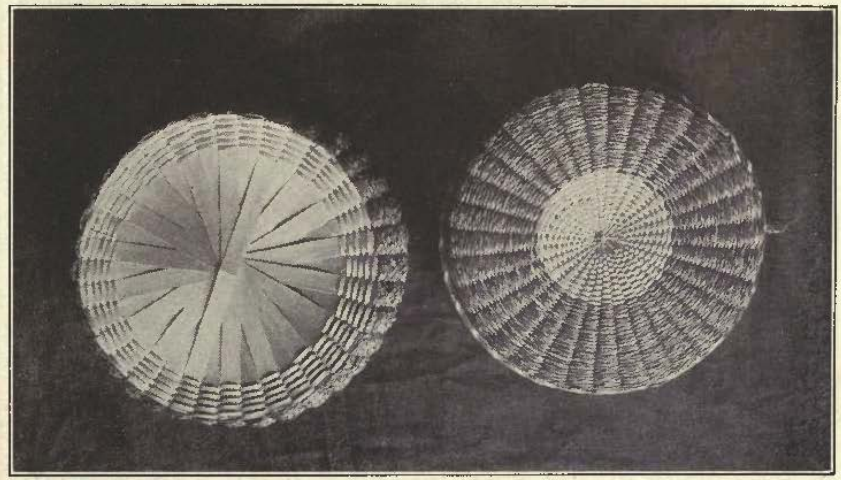


FIG. 145. SPLINT AND PLAITED SWEET GRASS BASKETS.
Courtesy Hyde Exploring Expedition, New York.

sweet grass twined in up to the top. Then the spokes are turned in, and the rim strengthened with other splints and bound with a narrow splint.

The lid, however, is made quite differently. For this the spokes must be very narrow in the center and broaden towards the edges. They are then woven with twined sweet grass until the lid is the size of the basket, or a trifle larger. The spokes are now turned down, and the twining continued until the flange of the cover is as deep as required. The spokes are then turned in, the edge strengthened by a suitable splint and bound as before. The handle is fastened to a loop which is held secure by being taken under the sweet grass of the under side of the lid in several places.

The method of making the handkerchief basket in Fig. 6 will be described in a later Bulletin of the Basket Fraternity.

Fig. 7 shows the bases and lids of the baskets of Fig. 6, and a study of them will make the foregoing instructions much more clear.

The carrying basket of Fig. 144 is of mat weave and web weave,

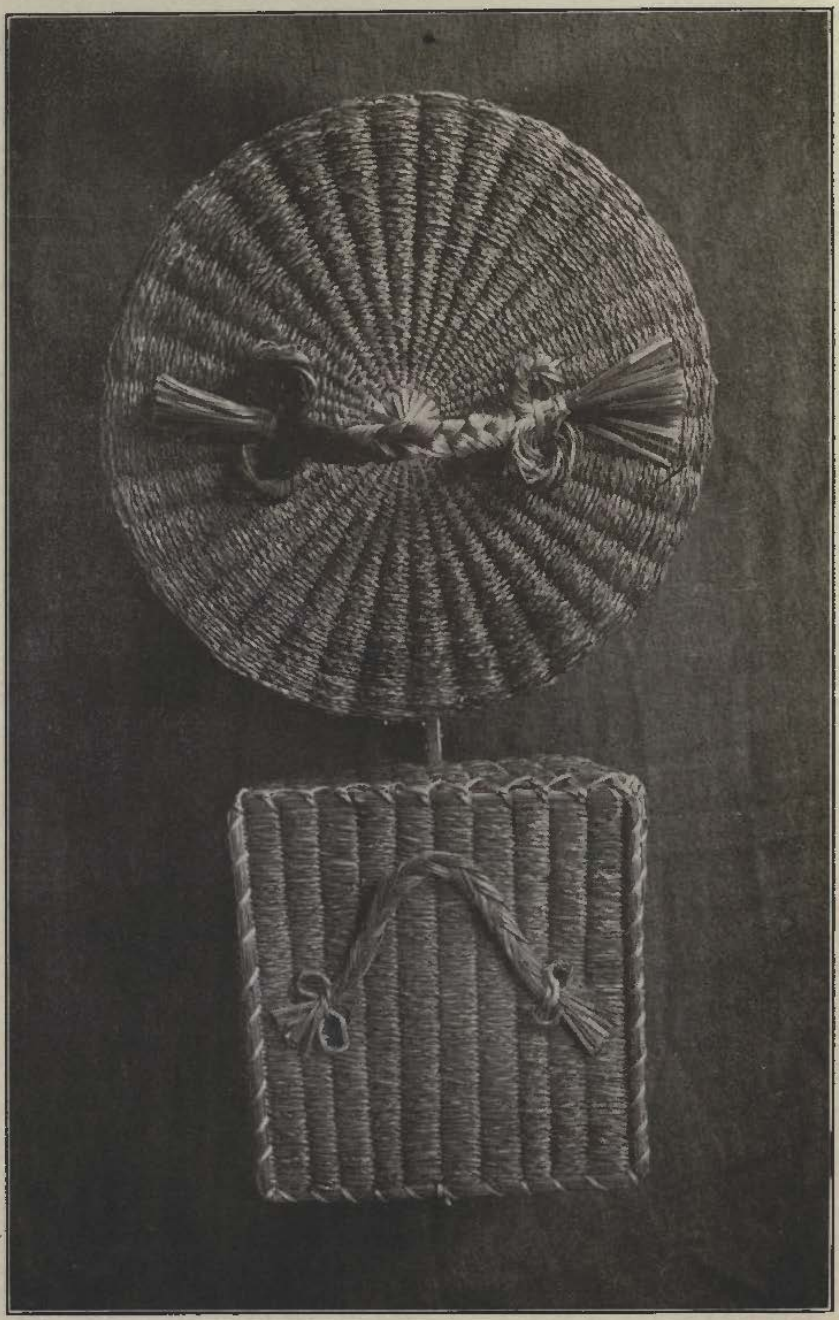


FIG. 146. SPLINT AND PLAITED SWEET GRASS B ASKETS.
Courtesy Hyde Exploring Expedition, New York.

using plaited sweet grass, plain splints, and the curl weave to give ornamentation. Take four splints about 23 inches long, and 3-8 of an inch wide. Cross these in simple mat weave with twelve similar splints, 18 inches long. Turn these up for ends and sides. First hold together with one row of simple splint weave. Then take two plaits of thickly plaited sweet grass and proceed to web weave. Now we take three weavers an inch wide and a long plait of extra thick plaited grass. Make two rows of ordinary web weave with two of these wide splints. Loop the plait and bind to the side by twisting or curling the third wood splint around the plait, under a foundation splint, over the plait, under the upper part of the next foundation splint, and so on alternating the wrapping of the curled splint around the foundation splints exposed by the upper and lower of the two broad weavers. Now continue the weaving of the sides with six rows of plain web weave and six rows of double plaited sweet grass as before. Turn down and tuck in the foundation spokes, strengthen the edges or rim with a stout splint inside and sweet grass outside, and then bind with narrow splint. The handle is composed of a heavy triple plait of sweet grass, fastened to the sides with an ordinary wood splint, the ends being looped as shown in the figure.

The work basket of Fig. 144 is made essentially in the same manner. The base, however, is formed as shown in Fig. 140. The edges of the base are made tight with four or five rows of simple splint web weave. The spokes are then turned up for the sides. Weave five rows of finely plaited sweet grass; two of narrow splint. Then two 1 1-4-inch wide splints, with the third for the curling and wrapping around the plait of sweet grass as described in the carrying basket. This is followed with a splint 5-8-inch wide, web woven, the rim being strengthened and bound with wood splints.

The lid requires the splints narrow in the center and widening out to the edges. When the spokes are in place, fasten by six or eight rows of ordinary web weaving with sweet grass. Then twine weave sweet grass for an inch and a quarter, after which introduce the broad splints, the thick plaited sweet grass and the curl as on the sides. Then complete the top of the lid with six or eight rows of web weave, using thickly plaited sweet grass for weaver. When the lid is the right size to fit the basket, turn the spokes down, and complete the weave with the plaited sweet grass until the flange is the size desired. Then strengthen and bind the edge as before described.

In Fig. 13 the top basket is a very pretty creation in plaited sweet grass. In both top and bottom the foundation spokes are narrow in the center widening towards the edge. They are first woven in web weave with narrow wood splint for about ten rows, then completed with plaited sweet grass, the edge of the lid being turned down, woven with plaited sweet grass, strengthened and bound as before described.

In the basket itself, after the turning up of the sides, the weaving for about an inch is composed of plaited sweet grass. Then three 1-4-inch splints are woven, web weave, and the rim strengthened and bound with simple wood splints.

The diagonal handkerchief basket is composed of diagonal mat weave, the corners being turned over and doubled and then twined with plaited sweet grass. The lid is of simple twined plaited sweet grass, made as the lid described in Fig. 6.

Fig. 145 shows the top and bottom or a basket and lid of a splint and plaited sweet grass basket. The base is formed as shown in Fig. 140, the edges being woven with nine or ten rows of splint web weave. The foundation spokes are then turned up for the sides, and the weaving done with twined weave, using plaited sweet grass for weaver. Strengthen the edge and bind as elsewhere described.

For the lid the splints must be narrow in the center and widening towards the edge. After laying out the spokes the first inch or

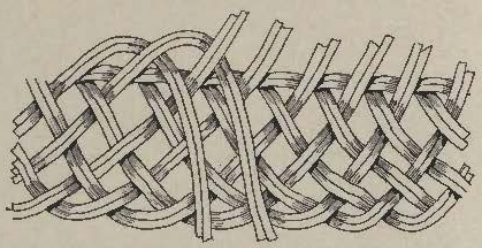


FIG. 147. MADEIRA BORDER NO. 2.

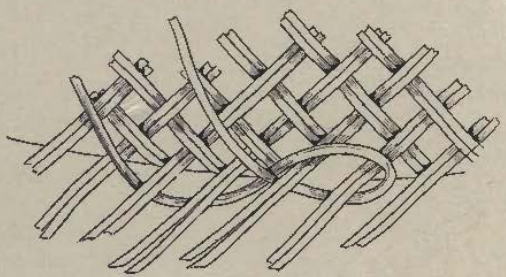


FIG. 148. MADEIRA BORDER NO. 2. PAIRING FOR PLAIT.

so may be simple web woven with narrow splints or plain sweet grass. Then twine weave with plaited sweet grass, until the lid is the right size, turn down the foundation spokes, finish the weave until the flange is of the desired size, then strengthen edge and finish off.

In Fig. 146 the square basket is made of mat foundation, using 1-2-inch wide splints. Turn up for the sides and twine weave with plaited sweet grass. Strengthen the rim with stout splint inside and and sweet grass outside and bind with narrow splint.

The lid is made as the one in Fig. 6 and laced on as there described. The handle is of heavy plaited sweet grass.

The round basket has a base as described in Fig. 140 six or seven rows of simple web weaving with narrow wood splint holding it firmly together. Turn up sides and twine weave with plaited sweet grass. When within an inch of top web weave with 3-4-inch wide wood splint, then strengthen and bind rim as elsewhere described. The lid is made as the round lid of Fig. 6.

CHAPTER XVII.

FANCY BORDERS.

MADEIRA BORDER NO. 1.—Allow four inches for this border. It is very simple, and suitable for violet baskets and small candy-baskets of various kinds.

"To make it, the spokes should all be double, as it has a much prettier effect when they are so. It is not necessary, however, to have the spokes double throughout the basket, which may be worked in the ordinary way with single spokes, allowing the four inches for the border, and then, when the weaving is finished, inserting beside each spoke an extra one of six inches, the extra length being pushed into the basket.

"Treat all the double spokes as one, and now take one lot of double spokes behind the next lot, in front of the next, and leave the ends on the outside of the basket.

"Repeat this round, drawing all the spokes closely down except the first, which must be left a little loose, as the last spokes are threaded through to complete the border.

"When the last two lots of double spokes are reached, proceed in the same way—behind one, in front of one—only, the first spoke, after being taken behind one, is threaded over the next spoke which is turned down, and the last is inserted first behind and then in front of the next two spokes already turned down.

To finish, the ends are all cut off neatly, the further side of the spoke against which they rest."

MADEIRA BORDER NO. 2.—Allow spokes of eight inches for this border, and use double spokes of No. 4 rattan or triple ones of No. 1.

For the sake of brevity, although many spokes may be used, they will be treated as one in the descriptions.

Be careful not to draw the first spokes down close to begin with; they must be left open, so that when you come to the finish you have room for inserting the last spokes.

"Take one spoke behind one, in front of one, behind one, in front of one, and leave the end on the outside of the basket (Fig. 147).

"Repeat this round, threading the last spokes through the spokes already turned down, on the same principle as for the preceeding border; only in this there will be more to thread through. Do not draw the spokes down too closely, as the border should be about one inch in depth.

"When this first part is done, turn the basket upside down to do the plait around the edge. Take one spoke in a close curve behind the next and bring the end down against the border (Fig. 148).

"It is necessary to keep this plait very close to the basket, so as each spoke is brought round the next it should be held firmly in its place by the left hand, and the hold should be shifted round as each

spoke is used. Finish by threading the last spoke through the loop of the first.

"Now go round again, curving one spoke beneath the next in the same way, only now the spokes curve round to make the other side of plait. When the last spoke has been threaded through the loop of the first, the plait is finished, and the ends must be cut off neatly. Care should be taken in doing this that the ends of the spokes are left long enough to go over the next spoke."

MADEIRA BORDER NO. 3.—Materials required—"Allow 8 inches for this border, and use three spokes of No. 2 rattan together. Depth of border without plait, 1 1-2 inches.

'Take one spoke behind two, in front of two, behind two, in front of one, leaving the end outside the basket. Repeat this round until only seven upright spokes remain.

"The first of these, after going behind and in front of the next six in the usual way, will be the first to be taken behind the first spoke turned down, the others following in their course.

"Do the plait in the same way as for "Madeira Border No. 2."

MADEIRA BORDER NO. 4.—Allow spokes of 14 inches, and use No. 1 rattan. Use three spokes together. Depth of border without plait, three inches.

This is a very light and graceful border. It must not be spread out, therefore it is necessary to keep the spokes straight to the top, and then to bend them to interlace with other spokes.

Great care is needed to keep a nice straight edge round the top of the border. If uneven the effect of the basket is quite spoilt.

Take one spoke behind three spokes, in front of two, behind two, in front of two and behind one, leaving the end outside for the plait.

Repeat this round, measuring occasionally to keep the border of the correct depth.

Finish off with the plait as described for the preceeding borders This border is worked on the outside of the basket."

MADEIRA BORDER NO. 5.—Allow spokes of 16 inches and use No. 4 rattan, two spokes together.

"Take one spoke behind three spokes, in front of three, behind three, in front of two, behind one, in front of one, leaving the end outside.

If the edge of the border, behind three and in front of three; if kept close together it has the effect of a double ridge or twist.

Finish off on the same principle as for the preceeding borders, and plait the ends.

This border is worked on the inside."

CYCLE BORDER.—Allow spokes of six inches. This border is called the "Cycle," as it is used on the cycle baskets; but it is very useful on many other kinds, principally those which have lids, as it is flat outside and the ends are all cut off neatly inside.

"Take one spoke in front of two spokes, behind one, in front of two, and push the end well down inside.

This is finished on the same principle as the "Madeira Borders," the last spokes being threaded through the turned-down spokes in their order. Thus, when only five upright spokes are left, the first of these will be taken in front of two, behind one, and then, to pass

in front of two again, it will be taken in front of the last upright spoke and the first one turned down, and through the loop of this it must be threaded to the inside; all the other spokes will then be threaded through in their places.

In starting this border, the first spoke must not be drawn close down to the weaving, but room should be left for the end spokes to be threaded through. After the first two spokes have been used,

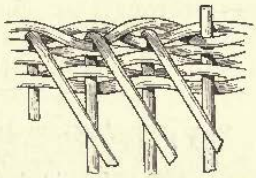


FIG. 149. COMMENCING FLAT PLAIT BORDER.

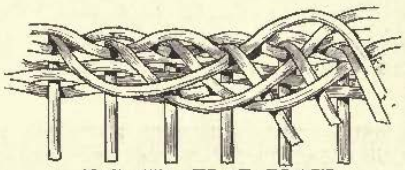


FIG. 150. FLAT PLAIT BORDER—SECOND POSITION OF SPOKES.

draw the border down as firmly as possible, as the closer the spokes come together the handsomer the border will look when finished.

When a pupil is efficient in this border six inches for spokes will be sufficient."

FLAT PLAIT BORDER.—Use for this No. 6 or 7 rattan. Allow spokes 13 inches long, but they must not be more than 1-2 inch apart.

"Turn down three spokes sharply to the outside of the basket (Fig. 149).Hold the second and third in the left hand, and with the right

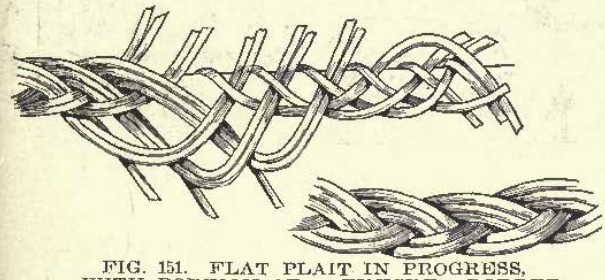


FIG. 151. FLAT PLAIT IN PROGRESS, WITH PORTION OF FINISHED BORDER.

FIG. 152. FLAT PLAIT BORDER FINISHED.

hand bring No. 1 spoke in a curve over the other two, and place it between the first two upright spokes; bring down the first upright spoke beside it. Repeat this with the second and third spokes; then there will be three spokes inside and two spokes outside. Take the first from inside, and bring it down beside the third spoke outside (Fig. 150). Be careful in doing this not to draw the spoke too tightly from the outside.

Now proceed to plait as follows: Take the first spoke from outside, place between the next two upright spokes, bring the first spoke from inside between the same upright spokes to outside, then draw the first upright spoke down beside it.

When the double spokes are reached they must be used together

as one spoke both inside and outside the basket; and when the triple spokes are reached the two longer ones must be used together as one, leaving the short spoke to be cut off afterwards. When the last upright spoke has been turned down there will be two lots of double spokes inside and three lots of triple spokes outside."

Take three twos out of the three threes, and pass them under the three that were first turned down.

This brings five lots of double spokes to the inside of the basket (see Fig. 151). Take first two lots and thread through as shown in Fig. 151. Then take the longer one of these, and, first threading it just through the first single spoke, that it may lie flat beside that,

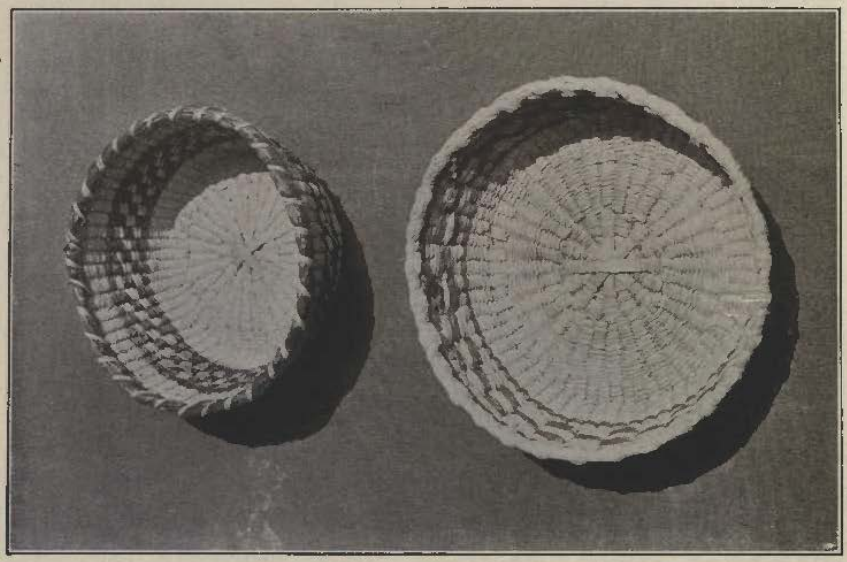


FIG. 153. SPLINT AND TWINED BASKETS.
Work of Students, Teachers' College, New York.

follow the course of the first single spoke under the black spoke to where it passes through to the outside of the basket, thus making it double like the others.

There are four other double spokes, and these must all be treated in the same way as the first double spoke.

In finishing this border the principle is to make all the single spokes used in starting double to agree with the rest of the border. To do this the longer one of each of the double spokes inside the basket is used to follow out their course.

Take the first double spokes from the inside and thread through the place shown in Fig. 151. Now take the longer of these and thread one up through the single spoke, so that it may lie flat beside that; then follow its course under single spoke No. 3 and then to the outside.

The other four double spokes must be used in the same way to finish the border (which is shown complete in Fig. 152).

CHAPTER XVIII.

A FEW BASKETS.

SPLINT AND TWINED BASKETS.—In Fig. 153 are two neatly made baskets, in which additional spokes are added for base and sides when needed. Start the base as described in Fig. 140. Pair or twine weave with raffia six or eight rounds, then insert new spokes and continue the twined weaving until base is size desired. Bend up spokes and proceed with the twined weaving, introducing bands of color according to taste. Bind the top with natural or colored raffia as shown.

In Figs. 154 and 155 are shown a rush, silk-lined, Kensington collar basket, a raffia collar box and a splint basket.

THE KENSINGTON BASKET. A. Fig. 154. This is made of rush or tule, though the long leaved pine may be used. Procure six yards of double twining material, raffia is good, and six bunches of tule or rush 14 or 15 inches in length and 21 single lengths to the bunch. Tie these securely at the middle and then tie together flat radiating from a center. See A. Fig. 155. Take a twining weaver and about an inch from the center proceed to twine over six or seven until a flat circle is formed by bringing the twining around to the place of beginning. Now taking care to twine around three only, make a larger circle an inch from the first twined circle. Continue to twine a second time round to make the base firm and flat. Now having secured a firm base it is desired to shape the side of basket. About an inch from the outside circle, twine around three rays until you come around to the place of beginning. See that this twining is equidistant from the base, and that the wall slants outward from edge of base.

An inch above this, twine around the groups of three all the way round to the last place of beginning, first letting a group cross over another group, under, and to the left. This gives a fancy effect and affords a place for decorating with ribbon as seen in the plate.

Above this about the same spaced width a final twining is made. An extra twining or three strand twisting over a coil gives additional strength to the edge.

The short ends of the rays are finished bending a first group of three over a group to the left under the next group. And so on in succession until the edge is finished.

Then line with fancy silk or other material.

Examples of this twined weave are shown in Figs. 133, 136, 137, Indian Basketry, and in Figs. 156 and 157 herewith.

COLLAR BOX.—Fig. 154B.—To make this knotted stitch basket take a length of No. 7 flat rattan. Form a loop, at one end, the desired diameter or oval of the basket. Tie together with weaver of raffia. Then begin the knot stitch, spirally coiling the flat rat-

FIG. 154. COLLAR BASKETS OF RUSH, RAFFIA AND SPLINT.

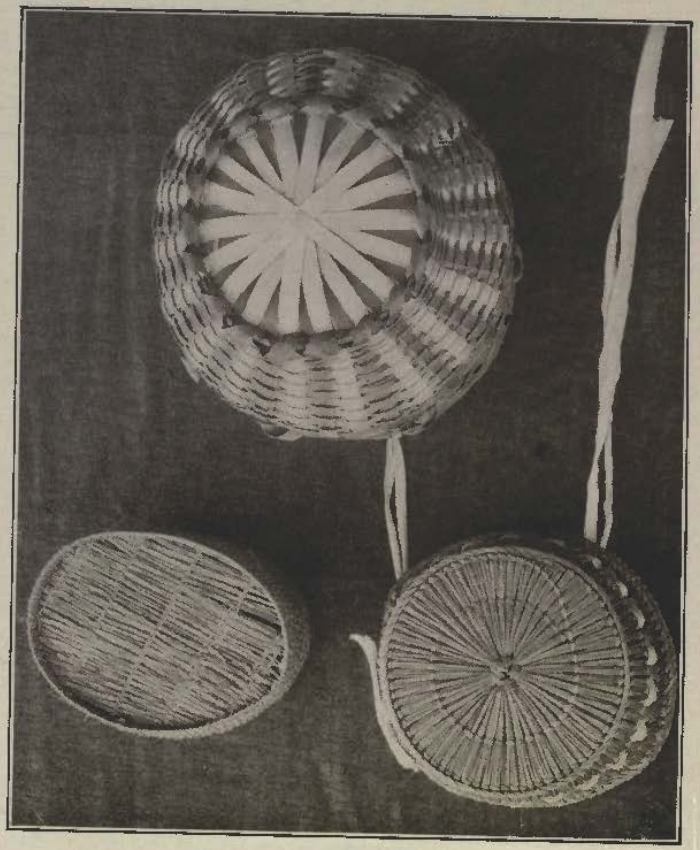


FIG. 155. BASES OF FIG. 154.

tan as the weaving progresses. Bring the edges of the rattan as close together as possible. Take the raffia over two bands of the rattan. Then make a "button-hole" stitch and, over two again, then the button-hole loop again, knotting carefully and tightly. When once round see that the next stitch goes between the stitches already on the first part of the work. Continue sewing until all of cane is used and finish with double button-hole stitch. The bottom is made by stringing web strands from end to end and holding them in place by woof strands placed an inch apart. Overcast the two woof strands together to hold them taut.

The cover to the box is a button-holed band of flat rattan with a woven top made by stringing web strands of raffia one way and weaving closely across the web with raffia.

THE ASH SPLINT BASKET. Fig. 154C.—Take eight yards narrow splint, green and white; four yards 1-4-inch green splint; 18 3-8-inch wide splints, 20 inches long and two yards 3-8-inch white splint.

Make base as shown in Fig. 140, fastening spokes in place with raffia or fine splint.

Then make another base same size as the first and place it above the first, letting the rays of the lower mat come between the rays of the upper mat. Twine the two together with a stout strip of ash splint very narrow. Now take two of the 1-8-inch weavers (a green and a white), and, securing the ends, weave over one, under one, filling a wall one inch high. Spread the spokes of the basket on a flat surface, bottom up, and weave in more of the narrow splint for about one and a half inches. Now carefully secure the ends of the weavers. Take up the basket and place it before you right side up. Bend all the spokes upward from the salver-like rim. (The splints should always be moist when bending is done). Take a wide length of ash the same width as spoke and weave in over one under one for the beginning of final wall. Use three broad bands in this way and then finish off with six rows of two colored twining. The final weaver to be a broad length of splint.

Fold over the outer spokes and tuck under twinings on the inside to keep them in place. Cut off the alternate rays even with top of basket.

Ornament with narrower bands of colored splint by overlaying the broad bands.

The two-toned effect shown in the plate was made by running green spokes on the upper base before twining.

The ornamental banding is made by slipping the colored ray back of and over weave and slipping the end again in place along its underlying spoke. See Fig. 154.

The edgeing rim around the bottom is an over and over weaving around the edge of the base two times round, with a fourth inch strap of darker splint.

After cutting away the holding bands of raffia or cord and modeling the basket may be considered finished. But if used for sewing a lining of silk may add to its value.

DIAGONAL MAT BASKETRY.—In an earlier chapter this branch of weaving was fully presented. A very common and useful

pair of objects which may as well be home woven as bought are pictured in Fig. 158. These are

WRISTLETS OR CUFF PROTECTORS.—These may be made of tule, of palmetto or any flat and reasonably firm material. Proceed as in ordinary diagonal weave. The top border is made with a double fold.

On page 65 "Indian Basketry," Fig. 60 is a Hopi Yucca Basket made on this diagonal mat weave, as is also the large basket to the left on page 83. Fig. 107, page 108, shows a Hopi weaver at work on this weave.

On page 120 "Indian Basketry," Fig. 124, is shown a Pueblo Indian mat. Using this as a pattern a little care will enable the student to make one similar to it. The main portion is of simple mat construction over two and under two. Then about twenty rows of web weaving, the outer edge being bound, completes the mat.

TOY CHAIR.—On an earlier page (Fig. 27), a toy chair is pic-

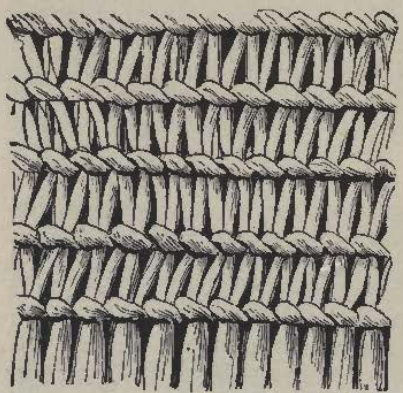


FIG. 156. SURFACE EFFECTS OF TWINED OPEN WORK.

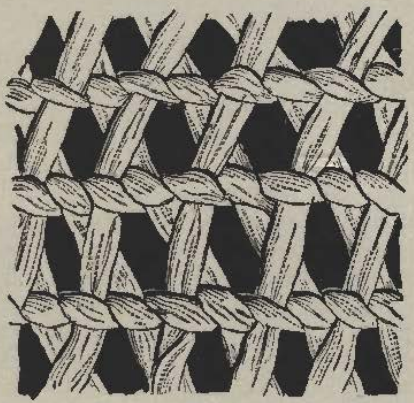


FIG. 157. CROSSED WARP TWINED WEAVING.

tured. This dainty and pretty little toy, which is also a useful adjunct to a toilet table as a ring holder, can easily be made with a little patience. Materials are, two lengths of No. 4 rattan for front legs, 2½ inches long. Rear legs and back are made from one piece, about 13 inches long, soaked and bent into desired shape. Insertion for back is piece of No. 1 rattan, 6¾ inches long.

Make two rings, one 2½ inches in diameter, the other 2 inches. Cut four pieces of rattan, same size, and nail the two rings together. It should not be forgotten that in making the rings the joints should be spliced perfectly, as shown in Fig. 104. Now wrap the two rings with raffia (Fig. 27). Tack legs and back to the rings. The bottom is made of a ring, cross-wrapped with raffia so as to fit perfectly, and then tacked or sewed in.

THE MAGAZINE HOLDER, Figs. 28 and 29, is made as follows: Detail of Magazine Holder—1. Main frame 22 inches long, 2 pieces; 2. Center frame, one piece, 20 inches long; 3. Bottom brace for main and center frames, two pieces, 2¾ inches long; 4. Bottom brace for side frame, two pieces, 6⅝ inches long; 5. Wooden base, made from

old box lid, 7 inches long, 3 inches broad. In the middle of each end saw out a hole large enough to allow center frame to rest snugly within. 6. Bottom brace for center frame, one piece, 6⅝ inches long; 7. Wire scroll, wrapped with twisted raffia, four pieces; 8. Ornamented frame for main frame, made as follows: Take two pieces of rattan 6⅝ long and two pieces 1¾ inches long. Tack the long pieces to the ends of the short pieces and thus make a frame—make two of these. Then wrap them with strands of raffia, tying them in the center,

FIG. 158. WRISTLETS OR CUFF PROTECTORS.

as shown. 9. Brace for ends, two pieces, split thick cane or rattan, 3¼ inches long. 10. Handle, one piece, No. 5 rattan, 14 inches long.

Thoroughly soak Nos. 1, 2. Bend into shape required. Then wrap with wide raffia, Nos. 1, 2, 4, 9 and 10.

To put together. Tack 6 to 5; tack the ends of 10 to 6; put 2 into end holes of 5, with ends below wood an inch and a quarter. Tack at holes to 5. Tack 10 to points where they cross 2. Tack 8 to 1, for both sides, also 4 to 1. Tack 4 to 5. Tack 9 to 5. Tack 3 to 1 and 2, then wrap with raffia, binding 3 at both ends to 1. The wire scrolls may now be sewed in with raffia, or tacked through the raffia to the rattan or wood of the frame. This latter method, however, is not wise, as the tack soon pulls out from the raffia. It is better sewed.

FLUTED FLOWER BASKET—Get 14 pieces of No. 8 rattan, 6 inches long; 56 of No. 2 green rattan, 21 inches long; 56 of No. 2 green rattan, 19 inches; 32 of No. 2 green rattan, 16 inches; 112 of No. 2 green rattan, 15 inches; 2 pieces No. 16, 48 inches.

With the fourteen pieces No. 8 rattan make an ordinary round base with an even number of spokes measuring 5 inches across.

Cut off the ends of the spokes and insert the fifty-six spokes of No. 2 green rattan, 21 inches, placing one spoke on either side of the one spoke in base. Turn the spokes upright. Now do three rows of triple twist with No. 2 white cane. Then twenty-nine rows of plain weaving.

Now insert the fifty-six spokes of 19 inches, placing two beside each two, and pushing them right down to the base of the basket (Fig.

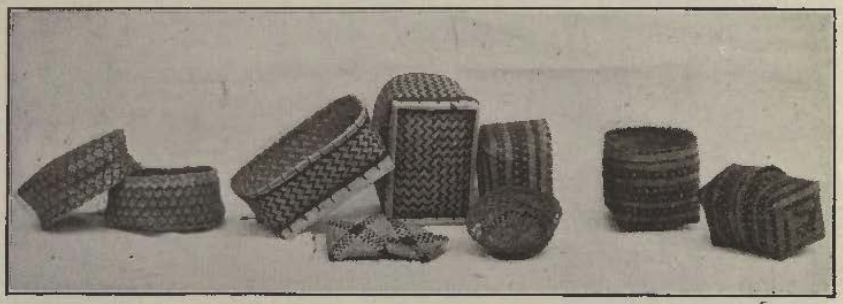


FIG. 159. BASKETS FROM THE PHILIPPINES.

164). Pair round once, dividing all the spokes into twos, excepting four lots of four spokes, which remain undivided.

These four spokes are at equal distances round the basket. Take the center spoke of each group of seven in the base, and you will get the right spokes at the side.

Between each of these lots of four spokes there will be twelve double spokes. The four spokes must be left upright, but the twelve

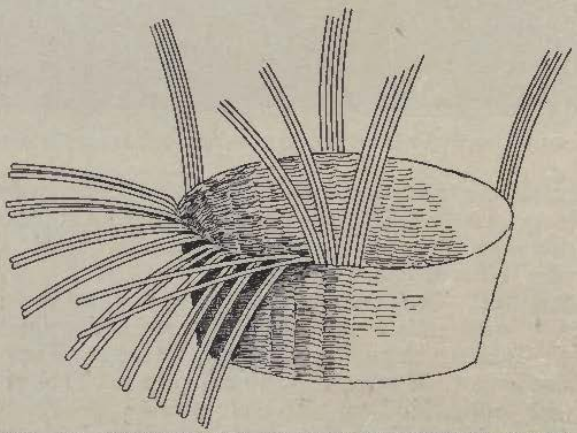


FIG. 164. SECTION OF FLUTED FLOWER BASKET. TURNING DOWN SPOKES.

must be bent down to the outside of the basket to form the curve, pressing them down most sharply in the center of each twelve (Fig. 165). When this has been done do nine rows of plain weaving.

Border—Insert the thirty-two spokes of 16 inches, placing two beside the next lots of two spokes on either side of the four undivided spokes, so that each curve has four lots of double spokes added to it.

Pair round once to divide into twos, still keeping the central side spokes undivided. Do eight rows of weaving. Insert the 112 spokes

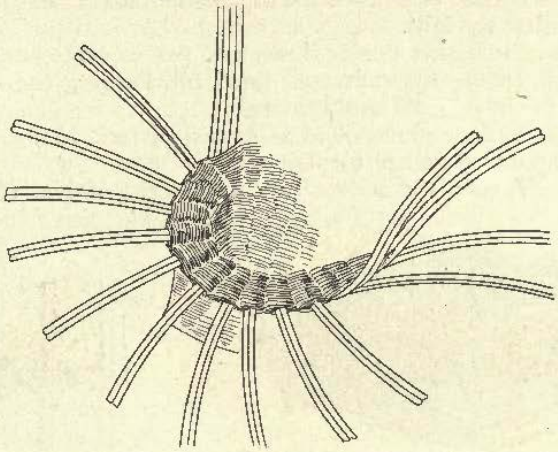


FIG. 165. SECTION OF FLUTED FLOWER BASKET. CURVE PARTLY WORKED.

of green rattan, placing two beside each two round the basket. Pair round once, dividing all the spokes into two, in readiness for the

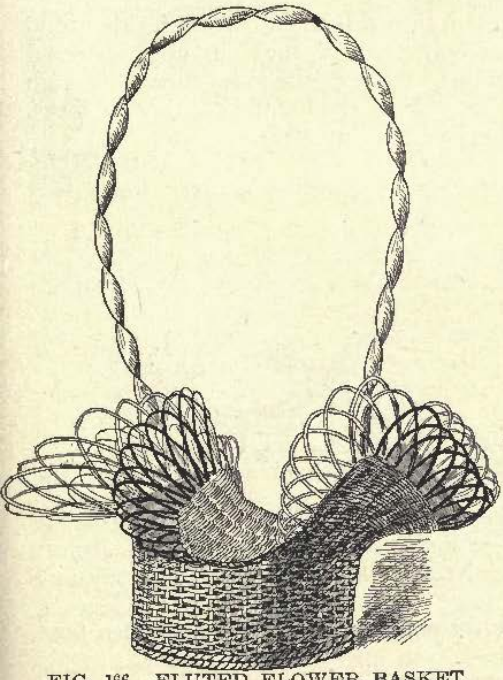


FIG. 166. FLUTED FLOWER BASKET.

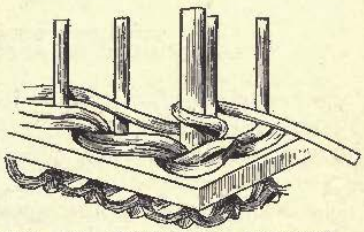


FIG. 167. STARTING SQUARE WORK BASKET. TURNING WEAVER ROUND CORNER SPOKES.

border, the depth of which is 3½ inches. (All the pairs of spokes are used together as one, and for the sake of brevity will be spoken of as

one.) Take one piece in front of three spokes, behind two, in front of two, behind one, in front of one, and leave behind. Repeat this round. This border is worked on top of the basket, the spokes being curved from left to right.

Now turn the basket upside down and pair round once, taking two lots of double spokes together each time, and keeping the row of pairing even with the edge of the weaving.

When this is done plait round as described for "Madeira Borders," using four spokes together to plait with.

Handle—Sharpen the ends of the two pieces of No. 16 rattan and

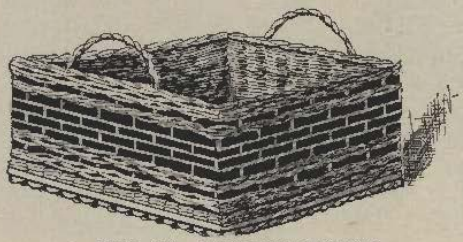


FIG. 168. SQUARE WORK BASKET, WOOD BASE.

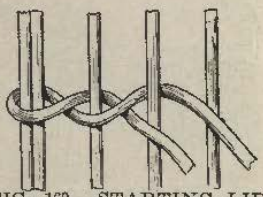


FIG. 169. STARTING LID OF SQUARE BASKET.

push two ends down beside one lot of four spokes on the inside of the basket. Twist the two pieces of rattan round each other, and push the ends into the basket at the opposite side.

Take two pieces of No. 2 rattan, thread both ends from inside round the handle cane just below the border, draw the four ends to equal lengths and twist round the handle to the opposite side; thread through to the outside two pieces on either side of the handle cane, cross these, and weave a short way round the basket (Fig. 166).

SQUARE WORK BASKET WITH WOODEN BASE—Materials Required—A square wooden base, 7½ inches across. Forty-four

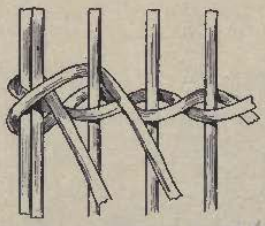


FIG. 170. TURNING WEAVER AROUND LAST SPOKE.

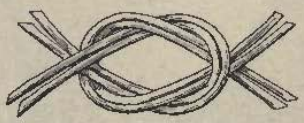


FIG. 171. DETAIL OF TWISTED HANDLE.

spokes of No. 6 rattan, 13 inches; nineteen spokes of No. 6 rattan, 16 inches; four spokes of No. 13 rattan, 4 inches; two pieces of No. 13 rattan, 12 inches; one piece of No. 13 rattan, 7 inches; twenty-nine spokes, 16 inches, for the lid.

Insert the forty-four spokes through the holes in the wooden base, leaving 2½ inches below.

Do the border in front of one, behind one, in front of one, leaving end inside. All this must be worked underneath the wooden base. In doing this, start the border when about six spokes have been inserted, and then continue the work round, putting in a few spokes at a time.

Turn the base up, and place the long spokes into position.

Do three rows of triple twist, and then place a piece of No. 13 rattan (4 inches), in each corner, beside the corner spoke. The two must be used together as one. Do four rows of single weaving.

When the round weave goes behind the double corner spokes it must be taken round them again; but when the weave comes on the outside, this is not necessary (Figs. 167 and 168).

Do one row of flat colored rattan. (This cannot be twisted round corners.) Do two rows of plain weaving; one row of triple twist; six rows of flat colored rattan; one row of triple twist; two rows of plain weaving; one row of flat colored; and four rows of single weaving.

Border—"Cycle" Border. In front of two spokes, behind one, in front of one, leaving end inside.

With the ends do the plait in the same way as explained for "Madeira Borders."

To make this basket of a good shape it is necessary to keep an equal distance between each spoke; the corner spokes should be pulled outwards, while those on either side are pushed in.

The piece of No. 13 rattan at each corner must be cut evenly with the weaving before the border is done.

The two pieces of No. 13 rattan (12 inches) can now be inserted for handles.

Sharpen the ends and push them into the basket beside the fourth spokes (counting from either end) and at the second row of triple twist. Take a piece of No. 2 cane, thread round the handle cane just below the triple twist, place a piece of flat colored cane over the top of the handle, and then twist the ends of the No. 2 cane round it, with spaces of about ½ inch between each twist. To finish, thread the ends through to the inside, cross them, and weave a few inches on either side.

Lid—Twenty-nine spokes, 16 inches.

If correctly worked this basket should measure 8 inches across; the lid, therefore, will be 7½ inches, as it fits inside the basket, resting on the plaited border there (it is shown in Fig. 168).

Allowing ½ inch on either side for the border round it, this brings the measurement of the center square of lid to 6½ inches.

Take two spokes of 16 inches and place flat on the table together; fold a strand of No. 2 cane and put the loop over the spokes 4½ inches from the nearest ends (Fig. 24).

Place another spoke flat on the table about ½ inch further on and pair round. Continue to place the spokes and pair them, keeping them in their places with the left hand, until a piece is done measuring 6½ inches (fifteen spokes), the last spokes being double (Fig. 25).

Turn this over from right to left, so that when flat on the table the weaving will continue from the left hand side, and the shorter end of the spokes will still point towards the work.

Take the two weaves round the double spokes at the end, one going under and the other over, and then do another row of pairing, keeping it in a straight line. When the other end is reached turn it over as before, and, leaving one weave out (leave an end of about 1 inch), bring the other back, and weave across the spokes; turn it over and

weave back again. Every second row of weaving must be taken twice round the double spokes at the ends.

When two outside rows of plain weaving have been done (counting in the ordinary way the number of times one weaver crosses the same spoke), the first side spoke must be woven in.

Take a spoke of 16 inches and, leaving an end of 4½ inches, weave down in place of the weaver; then take the weaver over or under the spoke and weave down the side.

Do two rows of single weaving with one piece of flat cane, leaving about ½ inch over at either end. Insert one spoke by weaving it in in the ordinary way; four rows of weaving, one spoke; repeat; one piece flat green; two rows weaving; one spoke; four plain weaving; one spoke; four weaving, one spoke; two weaving, one flat; two weaving, one spoke; four weaving, one spoke; four weaving, one spoke; two weaving, one flat, one spoke; four weaving, one spoke, one flat; two weaving, one spoke; two weaving, two pairing.

Now weave in a spoke at either side next to the pairing, then do two rows of pairing round the lid, catching in the ends of the flat cane with the spokes to which they are nearest, and dividing the double spokes at each corner. This pairing must be kept as close as possible to the weaving, or the lid will have a very untidy appearance.

Border—In front of two, behind one, in front of one.

Handle (on top)—One piece of No. 13 rattan, 7 inches.

Get the center of the lid, and with a piece of wire secure one end of the rattan against the third and fourth spokes, counting from the side.

Bend the rattan in a half-circle, and secure the other end in the same manner on the opposite side. Place a piece of colored rattan over the top of it, and twist the strand of No. 2 rattan round it in the same way as the side handles; sew the lid on with flat cane at the back, and in front just in the center and directly under the border of the basket, form a loop by threading a weaver around a few rows of the weaving; take the ends inside the basket, cross them, and weave each end a short way round the basket. Bind the loop with flat cane, make another loop to catch over the first; bind this also with fine flat cane, and a short piece of No. 13 rattan tied to the side of the basket, to slip through the under loop, will fasten it securely.

BASKET WITH TWISTED HANDLE HAVING INTERLACED ENDS—Miss White thus describes the method of making this basket. Materials for Basket—Eight 20-inch spokes of No. 4 rattan, one 11-inch of No. 4 rattan, six weavers of No. 2 rattan. For handle, one length No. 4 rattan.

A bottom is woven 2¾ inches in diameter, on eight and a half 20-inch spokes, which are then thoroughly wet and bent upward with a slight flare. When two weavers have been used, the spokes are flared more decidedly, and when two more have been woven in this way, the spokes are drawn in while using the remaining two weavers. The edge is then bound off and finished with the simple border described in the directions for a basket with a twisted handle in the first part of the chapter.

Handle—A length of No. 4 rattan which has been soaked until pliable is cut into four pieces and then separated into pairs. These are bent into loops at about ten inches from one end of each and

knotted in this way. The loops are held firmly where the short end of each comes against the long end (making sure that the short ends are on the same sides of the loops), one in each hand of the worker, who passes one loop through the other, bringing the ends of the loop through which it passed over it, which makes the loop uppermost on one end of the knot and on the other the ends, see Fig. 171. The short ends are now crossed one under a long end and one over (as shown in Fig. 171), and brought together. The long ends are also brought together making a knot like Fig. 172. This knot is placed about half way between the top and bottom of the basket, with the long ends turning up.

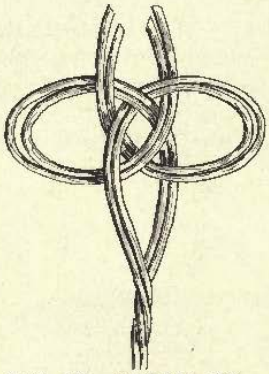


FIG. 172. DETAIL OF TWISTED HANDLE.

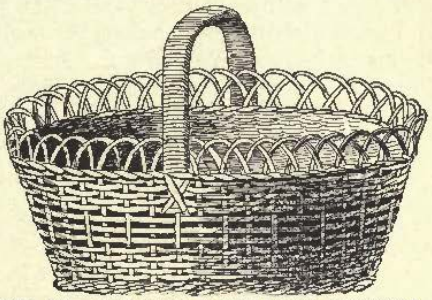


FIG. 173. OBLONG CARRYING BASKET.

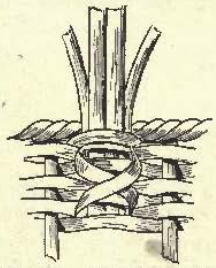


FIG. 174. COMMENCING HANDLE OF KEY BASKET.

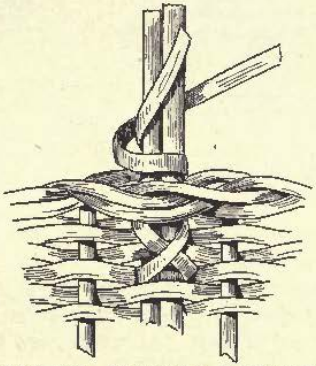


FIG. 175. BINDING HANDLE OF KEY BASKET COMMENCING.

The short ends are finished off by weaving one to the right over and under several spokes and the other to the left. The long ends are twisted together for about twelve inches, and are then made into another knot copied from the first one, for, although the process cannot be the same, it is so simple that one can easily follow its coils. This knot is placed on the opposite side of the basket from the first one and attached in the same way.

OBLONG CARRYING BASKET—Materials required—five spokes of No. 8 rattan, 18 inches; nineteen spokes of No. 8 rattan, 7 inches; fifty spokes of No. 8 rattan, 18½ inches; weave with Nos. 1, 3 and 40 flat.

Make an ordinary base, nineteen spokes across five, measuring 16 by 6 inches. Use No. 2 rattan. Insert the fifty side spokes, putting one on either side of the five long spokes at each end.

Turn up and do three rows of twist No. 3 rattan; thirteen rows of plain weaving; eight rows of flat rattan (colored) and round rattan alternately; twelve rows of plain weaving; one row of pairing.

Border—"Loop," 2 inches high. See Fig. 102.

Handle—Length of handle according to taste. Put on in the same way as described for the "Key Basket," the result being shown in Fig. 173.

KEY BASKET—Materials required—Spokes of No. 3 rattan, colored and white. Oblong wooden base. Thirty-six spokes of No. 3 rattan, 11 inches. Two pieces of No. 13 rattan, 16 inches. Weave with No. 1 rattan, colored, and forty flat.

Put the thirty-six spokes through the holes in the wooden base, leaving 3 inches below for the foot, and tie the longer ends together. Round the foot do four rows of plain weaving and border, behind one, in front of one; leave the end inside to be cut off afterwards.

Now turn the basket up and do two rows of triple twist and twenty-

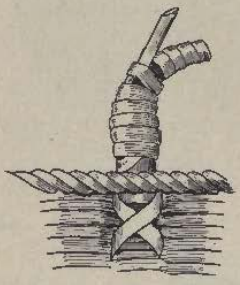


FIG. 176. BINDING HANDLE OF KEY BASKET FINISHING.

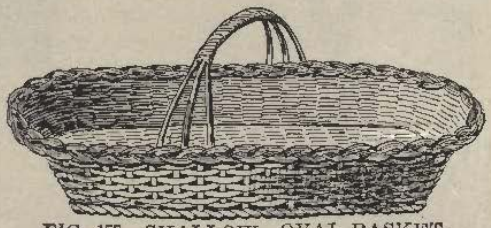


FIG. 177. SHALLOW OVAL BASKET.

two rows of weaving, using one white and one colored weaver alternately.

In making this basket great care is necessary to get it a nice shape with a sharp angle at each corner. In order to do this keep the corner spoke pulled outward and press the one on either side well in.

Also be careful to keep an even distance between each spoke. If this is not done, and the spokes are drawn together in some parts, or allowed to get wider in others, the basket will become uneven, and the shape will be spoilt.

Handle—Insert the two pieces of No. 13 rattan, one piece on either side of the center spoke in the side (as shown in Fig. 174), carry over the basket, and insert in the same way on the opposite side.

Get a long strand of No. 40 flat rattan, and begin by threading one end from the inside to the outside beside the handle cane and just beneath the border. Pull the end out until it is long enough to be carried on top of the handle to the opposite side and 4 inches over.

Cross it on the outside (as in Fig. 175), take it over the handles to the opposite side, and repeat the cross on the outside; leave the end sticking up against the handle cane.

Now with the long end of rattan bind neatly round the handle and flat rattan together, keeping one round of rattan just meeting the next, and winding tightly.

When the handle has been bound round as close to the border as it can be, cut the flat rattan, leaving an end of 3 inches.

Without unwinding any of the rattan, loosen it by twisting it round in the opposite way to that in which it was wound. When loose enough for about six rings up, push the end up and pull out between the rings (Fig. 176). Twist the rattan back again, and pull the end of it until quite tight; then cut off neatly.

SHALLOW OVAL BASKET—Materials required—Willow spokes the thickness of a slate pencil. Rattan may be substituted. Of

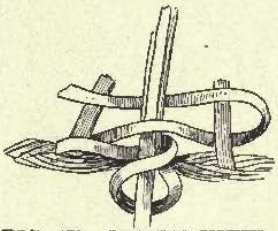


FIG. 178. INSIDE VIEW. STARTING HANDLE OF OVAL BASKET.

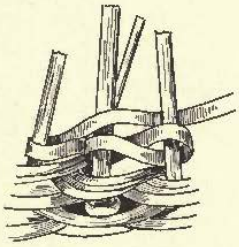


FIG. 179. OUTSIDE VIEW.

these take five of 19 inches, thirteen of 13 inches and fourteen of 4½ inches long. Then ninety-four of No. 7 rattan, 19 inches, three of No. 16 rattan, 30 inches. Weave with 3, 4, 6, 16 and 40 flat rattan.

Split the thirteen willows in the center and thread onto the five of 19 inches. Weave like an ordinary oval base until twenty rows of weaving with No. 3 rattan have been done.

Add the fourteen spokes, seven at either end, placing one beside each of the five long spokes and the first of the double side spokes.

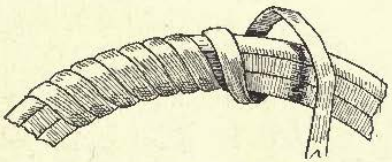


FIG. 180. BINDING HANDLE OF OVAL BASKET.

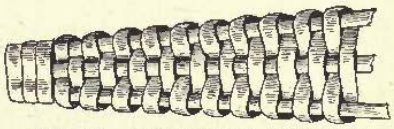


FIG. 181. FINISHING HANDLE OF OVAL BASKET.

Now do two rows of triple twist to divide the spokes with No. 4 rattan, and continue weaving until the base measures 18 by 12 inches.

Cut off the ends of the spokes, and insert the ninety-four spokes of No. 7 rattan, one on either side of each spoke, except the center one at each side. Turn up sharply and do two rows of triple twist, taking each spoke singly. Do seven rows of single weaving; three rows (straight round) of flat rattan; and six rows of weaving.

Border—"Flat Plait." See Figs. 149 to 152.

Handle—Place one piece of No. 16 rattan down beside the center side spoke and one piece beside the first spoke on either side; repeat on the opposite side. Thread a piece of No. 40 flat round the center handle rattan from the inside just below the border.

Leave one end several inches long, and with the other weave to

and fro between the three spokes until eighteen rows cross the center one (Figs. 178 and 179). In doing this the short end must be caught in beside one of the handle canes.

Now continue to bind over the top of the handle (Fig. 180), taking

FIG. 182. FINISHING OFF THE FLAT RATTAN IN BINDING A HANDLE.

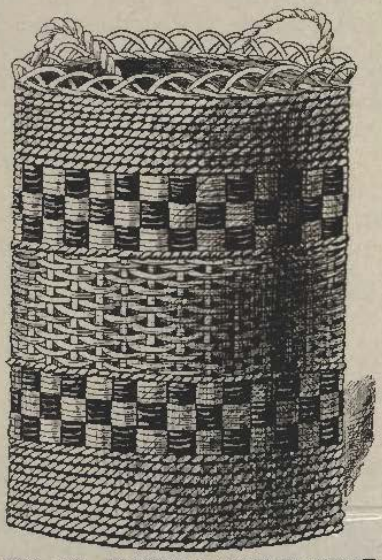


FIG. 183. WASTE PAPER BASKET

all three canes together until within 6 inches of the border, when the weaving is continued as in Fig. 181.

When the border is reached, the end of the flat rattan must be

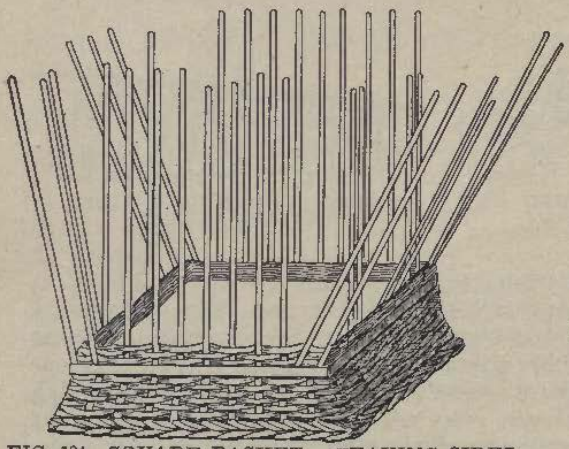


FIG. 184. SQUARE BASKET. WEAVING SIDES.

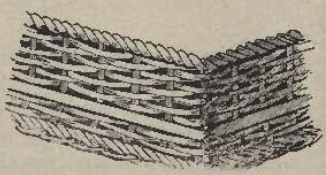


FIG. 185. SECTION SQUARE BASKET WITH STRAIGHT CORNER.

threaded round the center handle rattan just beneath it, and the end pushed up against one of the canes and then cut off (Fig. 182).

Fig. 176 shows how the handle ought to look when finished.

WASTE PAPER BASKET—Materials required—Twelve spokes

of No. 13 rattan, 12 inches; forty-eight spokes No. 7, 27 inches. Weave with Nos. 0, 1 and 2 rattan.

Weave the base in the ordinary way (see Figs. 125 to 129), until it is 9 inches across. Then insert the forty-eight spokes as usual, and turn them up; after so doing weave ten rows of triple twist and six rounds of two colors to make the check pattern (Fig. 183). Work until you have three checks: one row of triple twist; twenty-two rows of plain weaving; one round of triple twist. Now do your check pattern again—ten rounds of triple twist. Finish with plaited border (Fig. 183).

The handles can be put on at discretion.

SQUARE WORK BASKET WITH WOODEN BASE—Materials Required—One board for base, 6 inches square; 38 spokes of No. 6 rattan, 16 inches, 2 spokes No. 6, 10 inches; 2 spokes of No. 6, 6 inches. For handle, 22 inches No. 16 rattan.

Insert the handle in holes made for it in the wooden base, and at

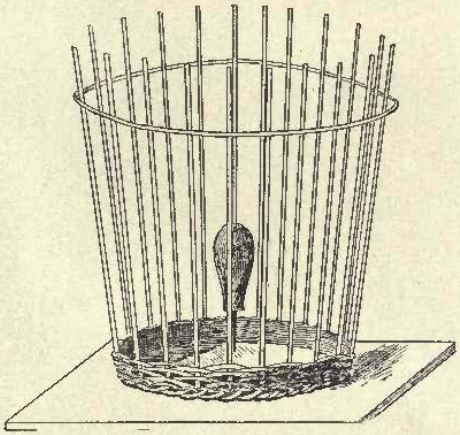


FIG. 187. METHOD OF HOLDING BASKET WHEN WEAVING SIDES.

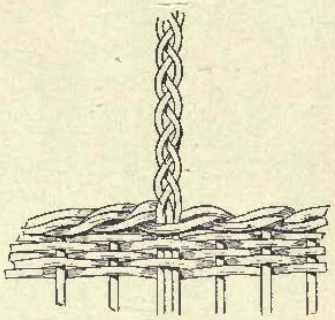


FIG. 186. PLAITED HANDLE.

1½ inches from each end make a sharp bend. Insert spokes for sides in wooden base, leaving 6 inches below the wood. Above the wooden base weave one row of rope twist, counting the handles as spokes. For this 4 lengths of No. 1 rattan, two of 36 inches (to be cut off when the twist is finished) and two longer, will be needed. Start the weavers on a side of the base which has not a handle through it. The two longest are carried on for a row of pairing, after which turn the base upside down and finish the foot before proceeding with the sides. Weave singly (see Fig. 20) with two weavers, the number of spokes being even, taking each weaver three times around, six times in all. The handle must be still counted as a spoke. Bend spokes outward and continue weaving for eight more double rows, sloping the foot to taste. Insert a short spoke close beside handle to be used in its stead for weaving the border. Finish with Closed Border No. 2.

Now turn the basket right side up, weave singly, see Fig 184, for half an inch, insert new weaver of dyed raffia or rattan and weave one inch, then another half inch or inch in natural color. Put a ten-inch

spoke close to each side of the handle, to be used in its stead in weaving border, and finish with Closed Border No. 2 or Open Border No. 2 according to taste. If for a workbasket, line with silk to taste.

PLAITED HANDLE.—A handle that is very easy to make is shown in Fig. 186. Where this handle is desired one of the spokes must be left long enough to form the handle. When the sides of the basket are woven insert two other spokes, one on each side of this long spoke, and plait as shown. These may all be doubled, if preferred, making a three-plait with two spokes instead of one. On finishing the plait the ends must all be pointed and thrust as far down to the base on the other side of the basket as possible, plenty of rattan being left for this purpose.

METHOD OF HOLDING BASKET WHEN WEAVING SIDES.—Fig. 187 clearly shows the base finished, the spokes twined up and all ready for the sides. Now place the basket on smooth board, thrust a small awl through the base into the board. The awl thus acts as a pivot on which the basket may be moved while the side weaving progresses.

FIG. 187a. KLIKITAT BASKET IN FROHMAN COLLECTION.

CHAPTER XIX.

FINISHING OFF A BASKET.

In all raffia work care should be taken to cut off loose ends as the weaver progresses with her work. In rattan, splint, willow and other ware small fibers will split off from the work, and these can be either singed off or rubbed off with fine sandpaper. In singeing be careful not to scorch the basket.

While the work is damp it can easily be twisted into shape, hence, before it is allowed to dry, one should correct all irregularities. See if the shape is as it should be; especially examine the loops of the border

FIG. 188. YAKUTAT GOOD LUCK RATTLE BASKETS, IN FROHMAN COLLECTION.

and see that they are all of the same size; make the bottom flat and the lid to fit. Things of this nature seem small, yet upon them often depends the difference between a poor and a good basket.

Dyeing, I think, should always be done before the basket is made—while the materials are still unformed. Only in this way can designs be worked out. If, however, the weaver desires baskets of one color, it may be as well to dye the completed work. If so, follow the methods suggested in the chapter on dyes.

Those who desire to varnish or polish their baskets may find recipes in Miss White's "How to Make Baskets"

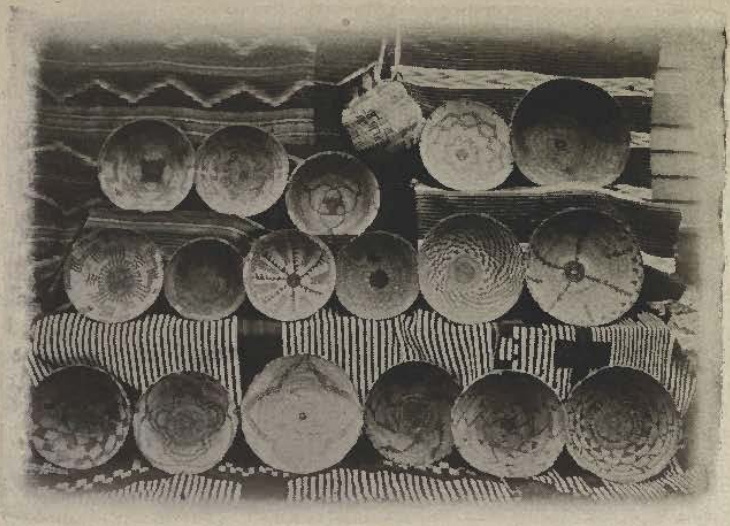


FIG. 189. OLD COILED BASKETRY IN THE COLLECTION OF H. E. SARGENT, JR.

FIG. 190. WHITE MOUNTAIN APACHE BASKETS IN THE COLLECTION OF H. E. SARGENT, JR.

CHAPTER XX.

HOW TO MAKE INDIAN BASKETS.

It is well for all students of basketry to learn how the Indian has produced the wonderful results that make her basket work so famous. At the very outset we are confronted by the magnitude of the subject. Even in the mechanical work the Indian showed a fertility of invention and a skill in execution little short of marvellous, hence in this chapter nothing but practical hints can be given, which, however, will suffice to start the earnest student upon the true pathway. Of the poetry and religion woven into Indian baskets I can here say nothing. In my larger book I have fully discussed this phase of the subject, and he who

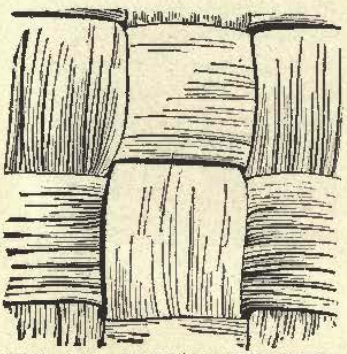


FIG. 191. COARSE CHECKER-WORK OR MAT WEAVE.

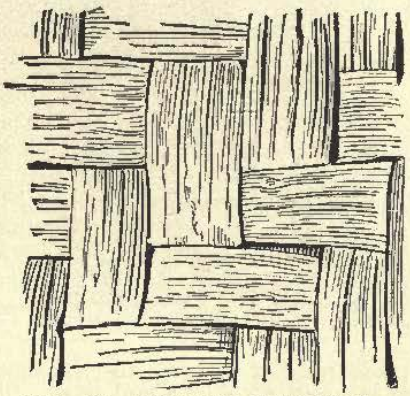


FIG. 192. TWILLED WEAVING.

would work intelligently cannot do better than "read, mark and inwardly digest" what is there written.

In what follows I have done little more than quote what that distinguished savant and sweet-spirited gentleman, Professor Otis T. Mason, Curator of the Division of Ethnology of the United States National Museum, has written in his "Directions for Collectors of American Basketry."

CHECKERWORK BASKETRY.—This is practically the mat weave of the preceding pages. Many North Pacific Coast as well as Atlantic Coast and Canadian Indians use this weave. Splints of every imaginable kind of material are used for this work, and the warp is the same as the weft. Indeed it is practically impossible to tell the one from the other (see Fig. 191).

TWILLED BASKETRY.—A variation of the mat weave is that which Professor Mason calls by this name. The fundamental technic of this work is in passing each strand of the woof over two or more warp strands, thus producing a twilled effect as seen in Figs. 192 and 193.

"The North Americans of antiquity were very skillful in administering the twilled technic. From examples reproduced by W. H. Holmes it will be seen that in the ancient weaving of the Mississippi Valley, in its southern portions, the weft would not pass over the same number of warp elements that it passed under. On the specimen shown (Fig. 194) the weft goes over one and under three, or the opposite, each time and each way." The Fijians make remarkable baskets by combinations of this weave. In this country the Chetamaches show marvellous ingenuity in the working out of designs in this weave by varying the laying of the splints and the use of different colors. Scores of designs may be made by the curious, but it is doubtful if one can be invented that these Indians have not long known. (See Figs. 10, 11, 39 and 40).

The ordinary WICKER WORK web basketry of civilization is Indian work, the finest specimens being the plaques of the Hopis,

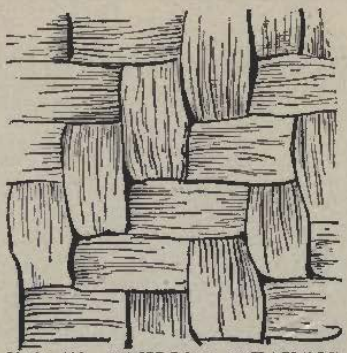


FIG. 193. TWILLED WEAVING.

FIG. 194. TWINED WEAVING IN TWO COLORS.

made only at Oraibi, and specimens of which are found in "Indian Basketry," Figs. 165 and 167.

WRAPPED WEFT.—This type of weaving was employed by the Mound Builders of the Mississippi Valley, and is still used by the Mohaves. A rigid hoop is sustained by four uprights, all rigidly affixed at the bottom. The warp extends from the top to the bottom, firmly fastened to the hoop at the top and the rigid members at the bottom. The weft, of twine or yucca fiber, is fastened to one of the rigid uprights and then wrapped once around each wrap element, continuing in a coil until the top is reached. The process is clearly shown in Figs. 195 and 196.

TWINED WEAVING.—This is the most intricate and elegant of all woven work. Professor Mason thus writes of the varieties of twined weaving as follows:

"Twined work has a set of warp rods or rigid elements, as in wickerwork; but the weft elements are commonly administered in pairs, though in three-ply twining and in braid twining three weft elements are employed. In passing from warp to warp these elements are twisted in half-turns on each other so as to form a two-ply or three-ply twine or braid. According to the relation of these weft elements to one another and to the warp, different structures result as follows:

1. Plain twined weaving, over single warps.

2. Diagonal twined weaving or twill, over two or more warps.

3. Wrapped twined weaving, or bird-cage twine, in which one weft element remains rigid and the other is wrapped about the crossings.

4. Latticed twined weaving, tee or Hudson stitch, twined work around vertical warps crossed by horizontal weft element.

5. Three-ply twined weaving and braiding in several styles."

1. PLAIN TWINED WEAVING—This primitive mode of weaving requires a set of warp elements arranged parallel to each other. Two splints or weavers compose the woof and they are twisted with a half turn around each warp stem. The Aleut and Haida baskets in Fig. 198 are made in this weave, which is clearly shown in Fig. 197. Other examples will be found illustrated in "Indian Basketry."

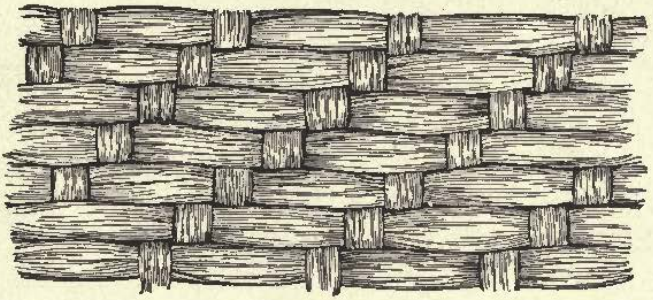


FIG. 194. TWILLED WEAVING PRESSED ON ANCIENT POTTERY OF ALABAMA.

2. DIAGONAL TWINED WEAVING.—The only difference between this style and the plain is in the manner the woof weavers cross the warp strands. "The technic consists in passing over two or more warp elements at each half turn; there must be an odd number of warps, for in the rest round the same pairs of warps are not included in the half turns. The ridges, therefore, on the outside, are not vertical as in plain twined weaving, but pass diagonally over the surface." (See Fig. 199).

FIG. 195. WRAPPED WEAVING OF THE MOHAVES.

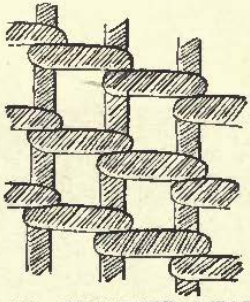


FIG. 196. WRAPPED WEAVING FROM A MOUND IN OHIO.

The esuwas, or water bottles, of the Havasupais are made in this style, (see Fig. 222 Indian Basketry), and many of the fine baskets of the Pomas are also made in a similar manner.

Fig. 200 "shows how, by varying the color of the weft splints and

changing from diagonal to plain weaving, the artist is enabled to control absolutely the figure on the surface."

3. WRAPPED TWINED WEAVING.—In this weave one ele-

FIG. 198. APACHE, KLIKITAT, ALEUT AND HAIDA BASKETS IN THE FROHMAN COLLECTION.

ment of the twine is passed horizontally along the upright warp stem, generally on the inside, while the other is wrapped around it and the upright warp, as seen in Fig. 201. The variation of one row of stitches

FIG. 199. DIAGONAL TWINED WEAVING.

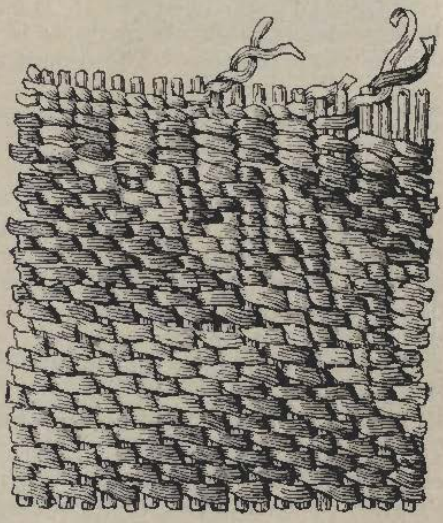


FIG. 200. VARIETY OF TWINED WORK OUTSIDE.

inclining to the right and the other to the left is caused by the weaver's wrapping from above or below. When the rows of these stitches are forced closely upon one another the effect is as in Fig. 202, which is the

exact method followed by the Neah Bay weavers. (For example, see Fig. 255 Indian Basketry).

Fig. 203 "shows a square inch of the inside of a basket, with plain twined weaving in the two rows at the top; plain twined weaving in which each turn passes over two warp rods in four rows just below.

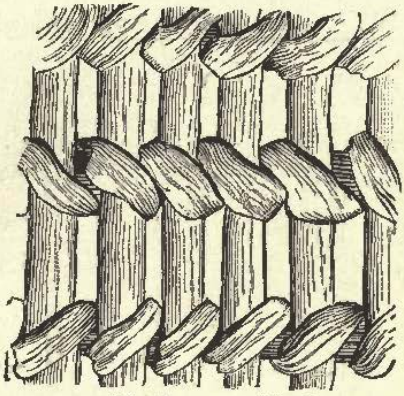


FIG. 201. WRAPPED TWINED WEAVING.

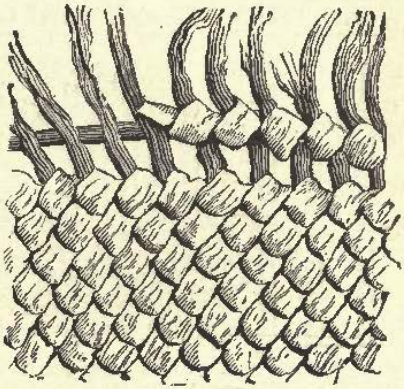


FIG. 202. NEAH BAY WEAVING, WRAPPED, TWINED.

In the middle of the figure, at the right side, it will be seen how the wrapped or Neah Bay twined work appears on the inside, and in the lower right-hand corner is the inside view of diagonal twined weaving. In the exquisite piece from which this drawing was made, the skillful woman has combined four styles of two-ply twined weaving. On the

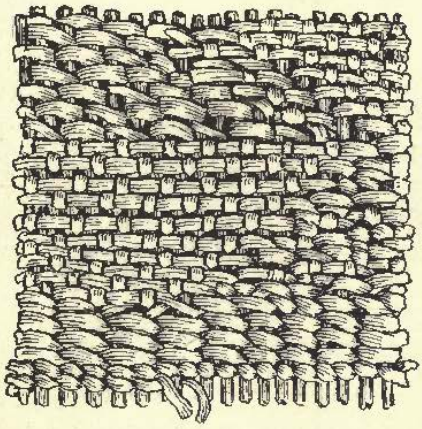


FIG. 203. TWINED WEAVING, INSIDE.

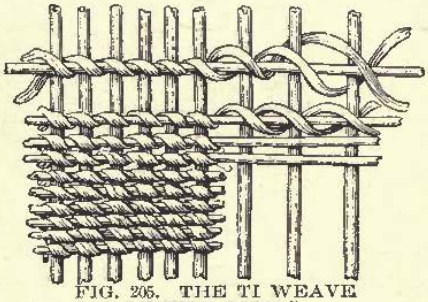


FIG. 205. THE TI WEAVE OF THE POMAS.

outside of the basket these various methods stand for delicate patterns in color." (See Fig. 200).

4. LATTICE TWINED WEAVING. It is believed that this form of weave is confined to the Pomas. It is described in "Indian Basketry," page 99, under the name of the Ti Weave. "The ti (pro-

nounced tee) twined weaving consists of four elements—(a) the upright warp of rods, (b) a horizontal warp crossing these at right angles, and (c, d) a regular plain twined weaving of two elements, holding the warps firmly together. (See Fig. 205). Baskets made in this fashion are very rigid and strong, and frequently the hoppers of mills for grinding acorns, and also water-tight jars are thus constructed."

5. THREE-PLY TWINED WEAVING.—"Three-ply twined

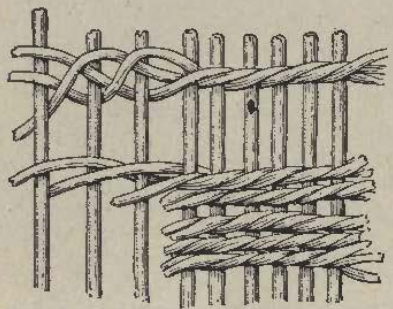


FIG. 206. THREE-PLY BRAID AND TWINED WORK, OUTSIDE.

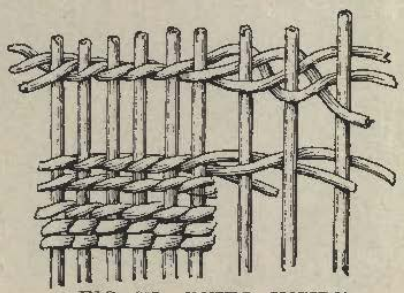
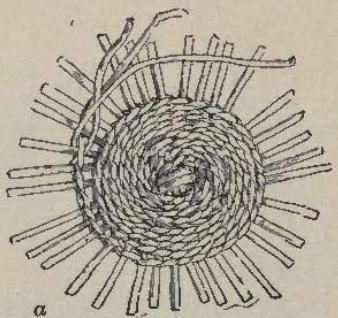


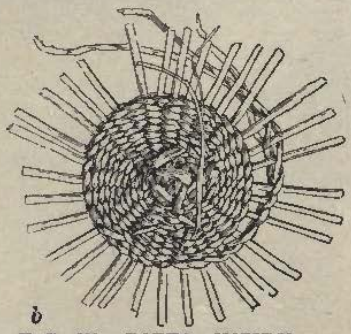
FIG. 207. DITTO, INSIDE.

weaving is the use of three weft splints and other kinds of weft elements instead of two, and there are four ways of administering the weft, viz.: a. Three-ply twine. b. Three-ply braid. c. Three-ply, false embroidery, Tlinkit. d. Frapped, Skokomish.

(a) THREE-PLY TWINE (Figs. 206 and 207).—In this technic the basket weaver holds in her hand three weft elements of any of the kinds mentioned. In twisting these three, each one of the strands, as



a
FIG. 208. THREE-PLY BRAID, OUTSIDE.



b
FIG. 209. DITTO, INSIDE.

it passes inward, is carried behind the warp stem adjoining; so that in a whole revolution the three weft elements have in turn passed behind three warp elements. After that the process is repeated. By referring to the lower halves of Figs. 206 and 207 the outside and the inside of this technic will be made plain.

On the outside there is the appearance of a two-ply string laid along the warp stems, while on the inside the texture looks like plain twined weaving. The reason for this is apparent, since in every third

of a revolution one element passes behind the warp and two remain in front.

(b) THREE-PLY BRAID.—In three-ply braid the weft elements are held in the hand in the same fashion, but instead of being twined simply they are plaited or braided, and as each element passes under one and over the other of the remaining two elements, it is carried

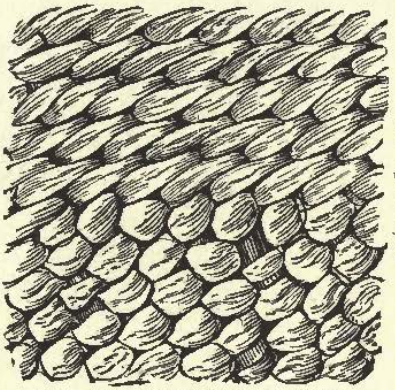


FIG. 210. THREE-PLY AND PLAIN TWINED WORK.

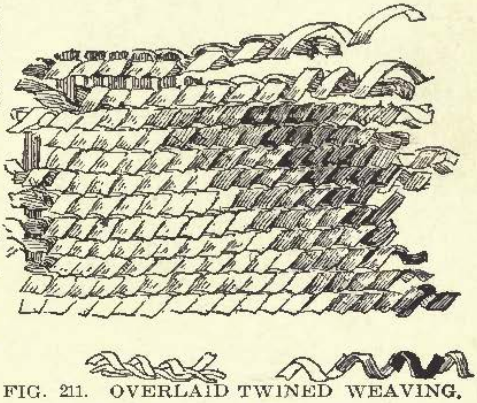


FIG. 211. OVERLAID TWINED WEAVING.

inside a warp stem. This process is better understood by examining the upper parts of Figs. 206 and 207 and 208 and 209. On the surface, when the work is driven home, it is impossible to discriminate between three-ply twine and three-ply braid. The three-ply braid is found at the starting of all Poma twined baskets, no matter how the rest is built up.

Fig. 210 shows a square inch from the surface of a Hopi twined jar.

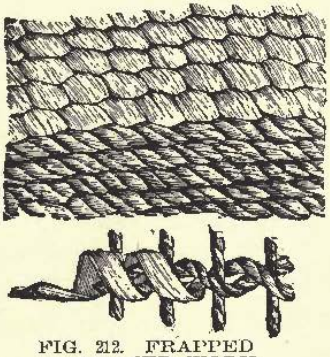


FIG. 212. FRAPPED TWINED WORK.

The lower part is in plain twined weaving; the upper part is in three-ply twine."

(c) THREE-PLY, FALSE EMBROIDERY.—"In Tlinkit basketry the body is worked in spruce root, which is exceedingly tough. The ornamentation in which mythological symbols are concealed consists of a species of false embroidery in which the figures appear on the outside of the basket but not on the inside. In the needlework of the civilized

woman the laying of this third element would be called embroidery, but the Indian woman twines it into the textile while the process of basket making is going on; that is, when each of the weft elements passes between two warp rods outward, the colored or overlaid element

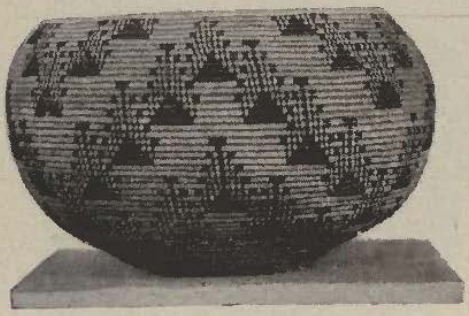


FIG. 215. WASHOE BASKET IN FROHMAN COLLECTION.

FIG. 216. YOKUT BASKET IN FROHMAN COLLECTION.

is wrapped around it once. Straws of different colors are employed (Fig. 211).

(d) FRAPPED BASKETRY, Skokomish type.—An interesting modification of this Tlinkit form of overlaying or false embroidery occurs occasionally among the Poma Indians under the name of bog or bag, and it is fully explained and illustrated by James Teit in his Memoir on the Thompson River Indians. In this Thompson River

FIG. 217. YOKUT BASKET IN FROHMAN COLLECTION.

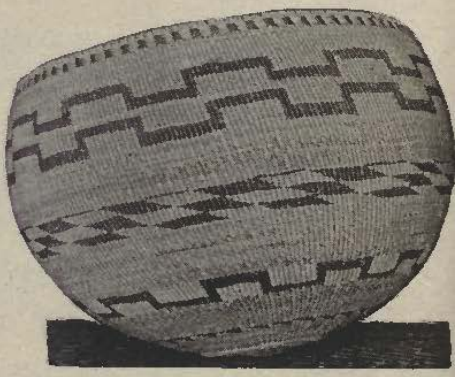


FIG. 218. POMO BAM TUSH WEAVE IN FROHMAN COLLECTION.

example the twine or weft element is three-ply. Two of them are spun from native hemp or milkweed, and form the regular twined two-ply weaving. Around this twine the third element is wrapped or served, passing about the other two and between the warp elements, and then the whole is pressed down close to the former rows of weaving. On

the outside of this bag the wrapping is diagonal, but on the inside the turns are perpendicular. The fastening off is coarsely done, leaving the surface extremely rough. I am indebted to Dr. Franz Boas for the

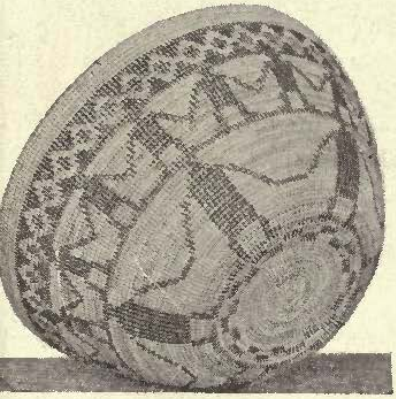


FIG. 219. YOKUT DANCE BASKET IN FROHMAN COLLECTION.

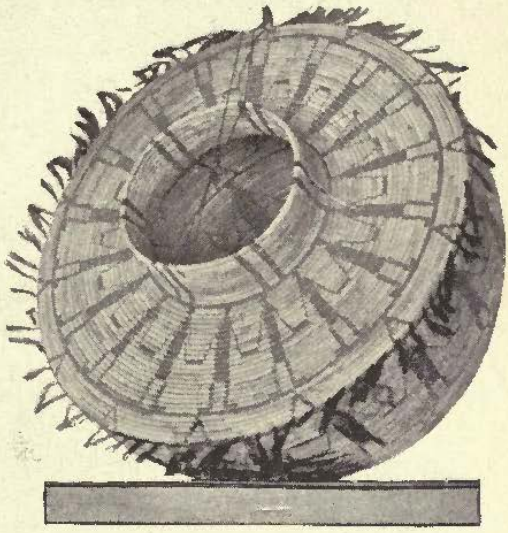


FIG. 220. DECORATED YOKUT BOTTLE-NECK IN FROHMAN COLLECTION.

use of Mr. Teit's figure. This combination is extremely interesting. The author says that it "seems to have been acquired recently through intercourse with the Shahaptins." A little attention to the stitches will

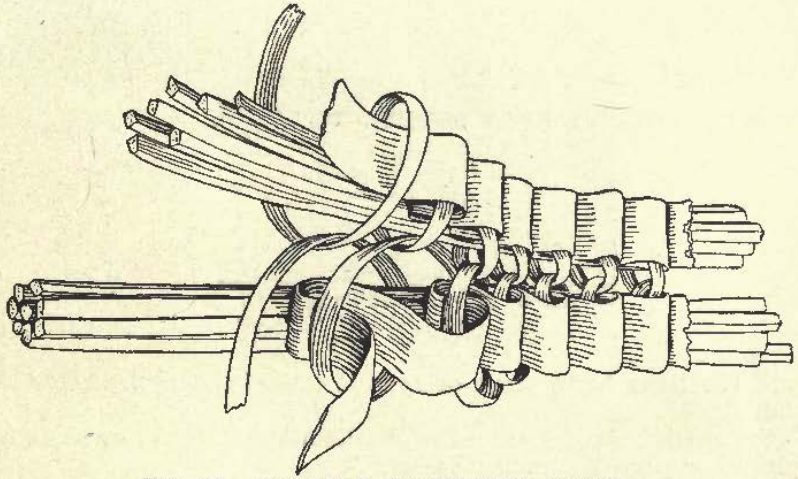


FIG. 221. KLIKITAT IMBRICATED WORK.

show that the bags and the motives on them are clearly Nez Perces or Shahaptian, but the wrapping of corn husk outside the twine are not done in Nez Perces fashion, but after the style of the Makah Indians of Cape Flattery, who are Wakashan (Fig. 212)."

Of Coiled Basketry I have already quoted Professor Mason's clear analysis. The following pictures show a variety of specimens of coiled work, largely from the Frohman collection, Portland, Ore.

Fig. 189 shows some beautiful specimens of old coiled work gathered by Mr. A. E. Sargent, Jr., in Arizona and New Mexico. They are all Apache baskets, the weave of which is described in "Indian Basketry." Fig. 190 is of new White Mountain Apache baskets in

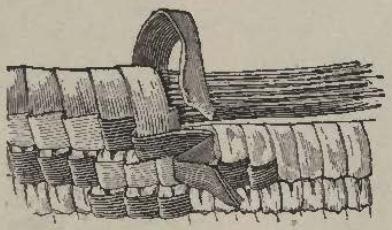


FIG. 222. IMBRICATED BASKETRY WORK OF THOMPSON RIVER INDIANS. AFTER JAMES TEIT.

Mr. Sargent's collection. The whole five are most beautiful specimens, with striking designs.

Fig. 215 is a Washoe basket in the Frohman collection. The weave is of the coiled variety, and the design is similar to that of Maidu pine cone design. (Fig. 322 Indian Basketry).

Figs. 216 and 217 are Yokut baskets of good shape, weave and de-

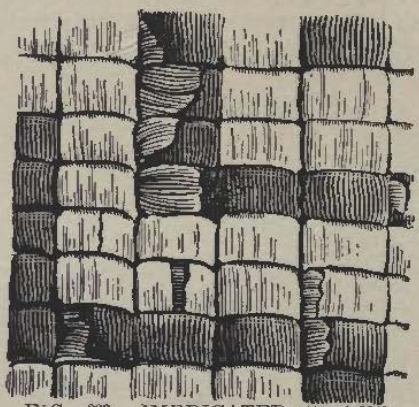


FIG. 223. IMBRICATED COILED WORK, CALLED KLIKITAT.

sign. The latter has a circle of dancers and of the rattlesnake diamonds.

Fig. 218 is a good specimen of the Bam Tush Poma weave, fully explained on page 96, "Indian Basketry."

Figs. 219 and 220 are both fine Yokut baskets, the latter being a bottle neck, with a circle of dancers on the flange, and with quail plumes as an additional decoration on the rim.

KLIKITAT BASKETRY.—As a frontispiece in "Indian Basketry" are seen two Klikitat basket weavers at work. Their materials are,

for the foundation, cedar or spruce root, while the sewing is done with the outer and tough portion of the root. In Fig. 221 the detail of this imbricated method of weave is shown. Strips of cherry bark, cedar bast and grass stems, dyed with Oregon grape, are added as ornament. "The strip of colored bark or grass is laid down and caught under a passing stitch; before another stitch is taken this one is bent forward to cover the last stitch, doubled on itself so as to be underneath the next stitch, and so with each one it is bent backward and forward so that the sewing is entirely concealed, forming a sort of "knife plaiting." In some of the finer old baskets in the National Museum, collected

IG. 224. POMA SHU-SET WEAVE BOWL AND BURDEN BASKET IN FROHMAN COLLECTION.

sixty years ago, the entire surface is covered with work of this kind, the strips not being over an eighth of an inch wide. Mr. James Teit describes and illustrates this type of weaving among the Thompson River Indians of British Columbia, who are Salishan. The body of the basket is in the root of Thuja gigantea, and the ornamentation in strips of Elymus triticoides and Prunus demissa (Fig. 222).

Imbrication is one of the most restricted of technical processes. Eells says that some women in every tribe on Puget Sound could produce the stitch, and he names the Puyallups, Twanas, Snohomish, Clallam, Makah, Skagit, Cowlitz, Chehalis, Nisqualli, and Squaxon. It is understood that here it is a modern acquirement. It is the native art of the Klikitat, Yakima, and Spokanes, all of whom are of the Shahaptian family. The Thompson River Indians, who are Salishan, have long known the art."

CHAPTER XXI.

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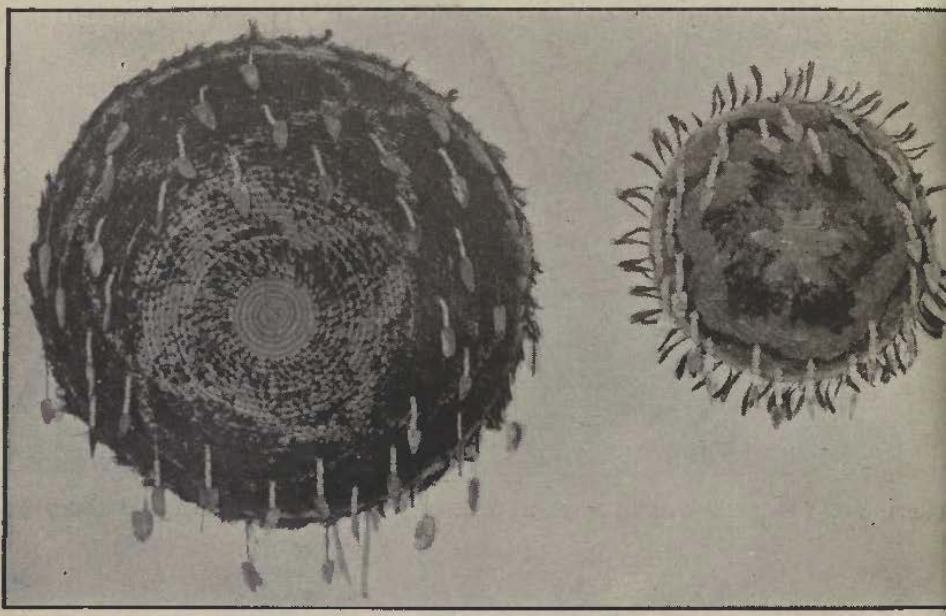

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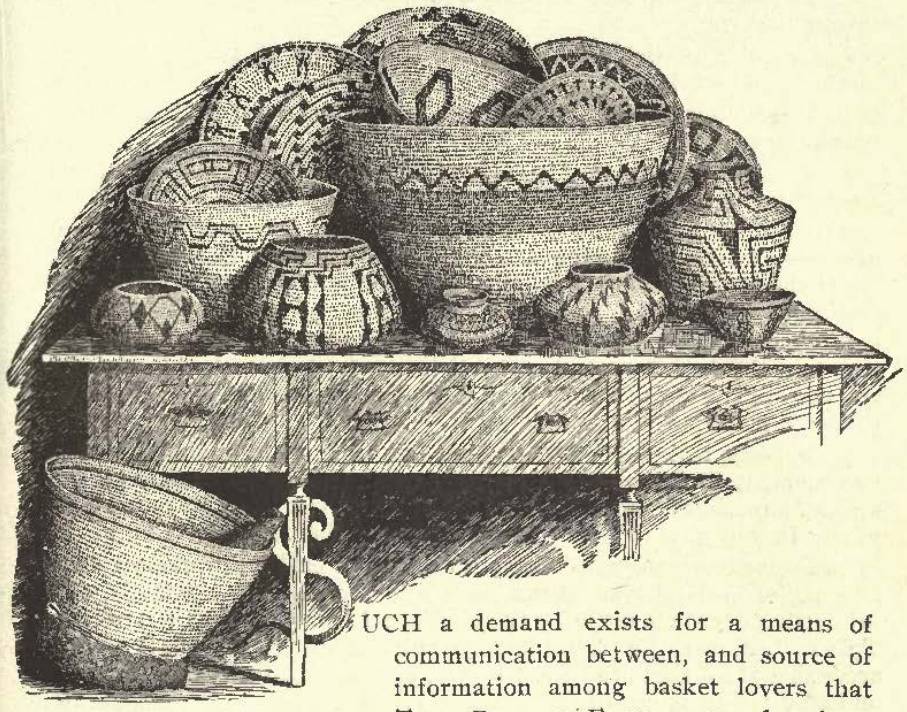

SUCH a demand exists for a means of communication between, and source of information among basket lovers that THE BASKET FRATERNITY has been organized by George Wharton James.

It has a large charter membership from its start. The charter roll will remain open until the end of 1903.

Its only conditions for membership are that you are interested in Indian or other baskets, and send your Fraternity fee of one dollar.

Do you want a loan collection of fine Indian Baskets in your town or village?

Then join The Basket Fraternity and get nineteen others to do so, and the collection will be sent to you without charge.

Do you want a lecture on Indian Basketry?

Read page 4 and you will see how it may be had.

THE BASKET FRATERNITY is a society of basket lovers, organized for the purpose of bringing together those who have felt the charm and fascination of Indian basketry.

ITS OBJECTS ARE:

1. To form a means of communication between basket lovers throughout the world.

2. To collect reliable and accurate knowledge of Indian weavers' methods and work.

3. To photograph aboriginal weavers and make a collection of said photographs.

4. To seek in every way to revive the art and prevent its dying out among the Indians.

5. To discourage among the Indians the modern commercial methods, which encourage the making of baskets merely for sale, foster the use of aniline dyes, alien designs, hastily prepared materials and crude workmanship.

6. To encourage the opposite of the spirit referred to above: to seek to retain the love for good and artistic work; to banish aniline dyes, and restore the use of native dyes, native shapes and designs, carefully prepared materials and artistic work.

7. To seek to influence the Indian department of the United States Government to earnestly endeavor to work to this end among all the agents, superintendents and teachers in its service, and to require all young Indian girls to learn the art as part of their school training.

8. To make a national collection of typical baskets of every weave and style to be found throughout the world, but especially and primarily of baskets made by the aboriginal tribes of North America. This collection to be placed in some suitable location where it will be accessible at all times to basket lovers, and especially for the pleasure and study of members of this fraternity.

9. To organize a "traveling library" of veritable typical Indian baskets and send these as required to members of the fraternity for study and exhibition. Such a collection of basketry is already made, and is ready for its travels on call from those entitled to it.

10. To arrange for the gathering and distribution of Indian materials for basket weaving which shall be sold to members of the fraternity at as near cost as possible.

11. To prepare a set of stereopticon slides, with accompanying lecture, which will be loaned on payment of a small fee to any member of the fraternity. To prepare such slides also for sale.

12. To distribute among its members photographs or engravings of fine and typical baskets of all makes, and of representative Indian weavers.

13. To disseminate information among its members relating to the art and the objects of the fraternity.

14. To secure the ends aimed at in Sections 12 and 13, to prepare, and issue quarterly an illustrated bulletin of general or specific interest to basketry lovers and collectors and to send this bulletin, when issued, free to all members of the fraternity.

15. To arrange for lectures on Indian basketry when and where possible, either to members of the fraternity or to outsiders desirous of knowing of its work; to organize classes for the teaching of basketry, and to enlarge the circle of those who know and love good basketry work.

16. To promote the organization of classes for the teaching of basketry in orphan asylums, prisons, poor houses, insane asylums and other eleemosinary establishments, in order that easy and simple employment may be found for the unfortunate which will help relieve the harmful monotony of their lives.

17. To set in motion all possible machinery for the creating of markets for baskets so made, as well as the baskets made by the Indians, in order that their makers may derive as much financial benefit as possible from their labors.

The fraternity fee is $1.00 per year, payable on application. Entrance may be made at any time during the year. In return for this fee the members of the fraternity are assured that they will receive:

1. The four bulletins, issued quarterly, referred to in Section 14.

The first of these is a beautifully illustrated hand-book entitled "How to Make Indian and Other Baskets," by George Wharton James, author of "Indian Basketry," and originator of The Basket Fraternity.

The second is in preparation and will be entitled "Living Indian Weavers." It will comprise fully twenty portraits of typical Indian weavers, with descriptive accounts of their work. It will be issued April 1.

The third bulletin will be entitled "Typical Indian Basket Shapes," and will contain not less than twenty plates of exquisitely shaped Indian baskets. It will be issued July 1.

The fourth bulletin will be entitled "Typical Indian Designs," and will contain fully twenty illustrations of baskets of superior design. It will be issued October 1.

2. Whenever twenty members of the fraternity, living in one town or section, unite in asking for the loan of an Indian basketry collection, it will be sent to them on guarantee of its safety and the payment of freight charges both ways.

Forms of application for such a loan will be sent on request.

3. Whenever fifty members of the fraternity petition for a lecturer, and will guarantee a small fee and necessary expenses, one will be sent, in order to further the work of the fraternity.

The headquarters of The Basket Fraternity is Pasadena, California, where the nucleus of the national collection and the "traveling libraries" of Indian baskets are located.

Address all communications and make all P. O. Orders payable to

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Forms of application for membership will be sent on request. The first bulletin will be forwarded as early as possible after receipt of the fraternity fee of one dollar.

Chap. I.	Introduction	5
II.	The Spirit in which Basket-Making should be Approached	10
III.	Choice of Material	14
IV.	The Preparation of Materials	18
V.	Dyes; How to Make and Use Them	28
VI.	Tools and Terms	32
VII.	How to Begin	34
VIII.	The Mat Weave	37
IX.	The Plait or Braid	48
X.	The Net Weave	52
XI.	The Coil Weave	58
XII.	The Web Weave	73
XIII.	Insertion and Borders	77
XIV.	More about Bases	84
XV.	Web Weaving Continued	89
XVI.	Splint and Sweet Grass Baskets	93
XVII.	Fancy Borders	103
XVIII.	A Few Baskets	107
XIX.	Finishing the Basket	123
XX.	How to Make Indian Baskets	125
XXI.	Bibliography	136

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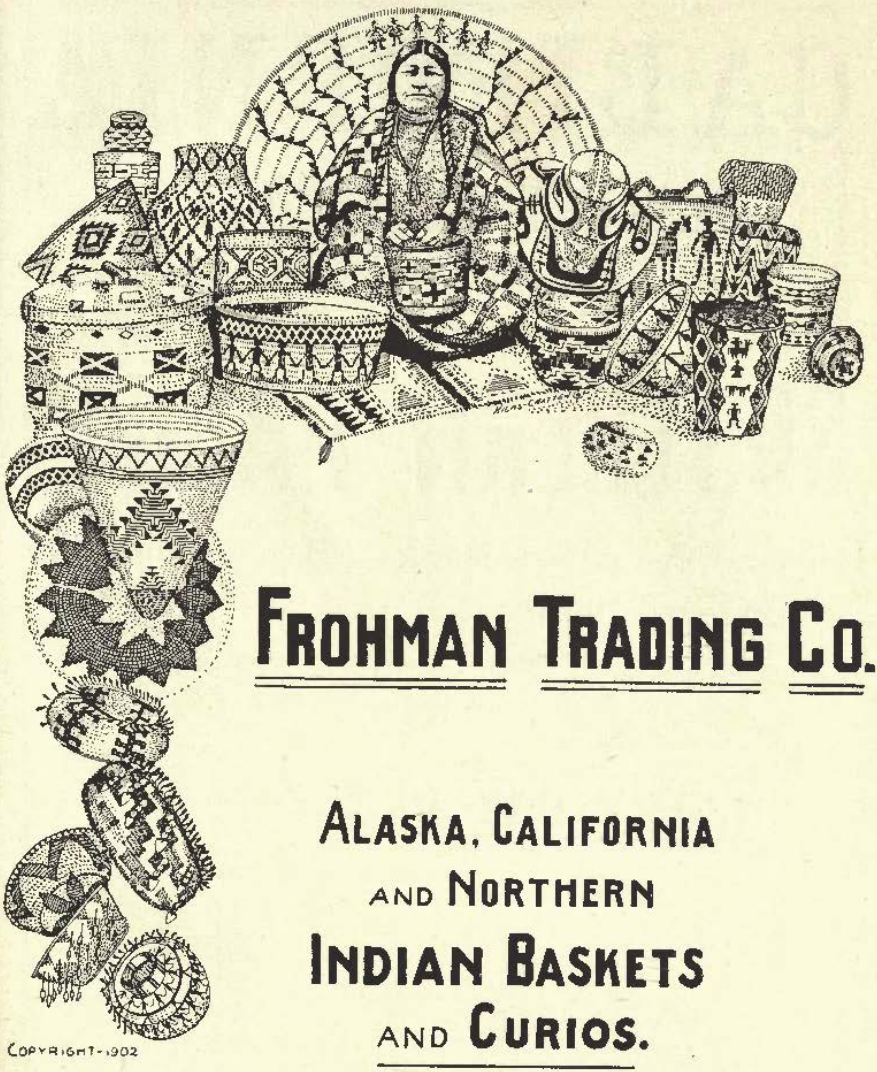
ILLUSTRATIONS.

Fig.		Page.
1.	Apple Green Basket, Deerfield	4
2.	Mouse Basket	6
3.	Corn Husk Poppy Basket	8
4.	Fancy Splint Basket	10
5.	Splint and Sweet Grass Fan	12
6.	Baskets of Splint and Sweet Grass	13
7.	Base of Baskets shown in Fig. 6	14
8.	Swale Grass Tray, Deerfield	15
9.	Red Bird Basket, Deerfield	16
10.	Chetemache Mat	17
11.	" "	17
12.	Deerfield Straw Baskets	18
13.	Splint and Sweet Grass Baskets	20
14.	Picotie Pink Basket, Deerfield	22
15.	Splint Baskets	24
16.	Reed Baskets, Deerfield	24
17.	Weaver Splint Cutter	25
18.	Foundation Splint Cutter	25
19.	A Splint	32
20.	Single Weaving	32
21.	Double Weaving	32
22.	Pairing	32
23.	Triple Weave	33
24.	Rope Twist	33
25.	Raffia Bound Picture Frames	26
26.	Raffia Wrapped Articles	34
27.	Toy Chair of Wrapped Raffia	36
28.	Magazine Holder	35
29.	" "	36
30.	Simple Coiled Baskets	37
31.	Simple Mat Weave—Open	38
32.	" " " —Closed	38
33.	Table Mat	39
34.	Interlacing Strands of Different Colors	41
35.	Interlacing Strands of Different Colors	41
36.	Isolated Figures Produced by Modifying Order of Intersection	41
37.	Mat Foundation Work	41
38.	Accordeon Plait, Diagonal Mat Weave, etc	40
39.	Chetemache Mat	40
40.	" "	40
41.	Splint Picture Frame Foundation	42
42.	Splint Picture Frame	42
43.	Splint Mat Weave Baskets	42
44.	Market and Other Baskets	42
45.	" " " "	45
46.	Caning a Chair	46
47.	Cane Tie	46
48.	Caning a Chair	46
49.	Weave of Chair Cane	46
50.	Articles of Plaited Raffia, etc	49
50a.	Bottom of Deerfield Basket	51
51.	Plaited Belts	50
52.	Hoop and School Bag of Plaited Raffia	47
53.	Doll's Hat and Tray of Plaited Raffia	47
54.	Plaited Raffia Hats	52
55.	" " "	53
56.	Baskets of Plaited Raffia	54
57.	" " "	55
58.	Five Strand Plait of Raffia	56
59.	Stick and Knot of Raffia	56
60.	Single Net Mesh	56
61.	Netted Bags of Raffia, etc	56
62.	Net Mesh	56
63.	" "	57
64.	" "	57
65.	" "	57
66.	" "	57
67.	Button Hole Stitch on Ring	58
68.	" " " "	58
69.	Covered Napkin Rings	58
70.	Simple Coiled Baskets with Variation	58
71.	Simple Coiled Trays	60
72.	Pine Needle Coiled Baskets	60
73.	Wrapping Before Coiling	61
74.	Beginning the Coil	61
75.	Detail of Coil	61
76.	Cross Sections of Varieties in Coiled Basketry	62
77.	Detail of Interlocking Stitches	63
78.	Detail of Single-Rod Coil	63
79.	Foundation of Two Rods	63
80.	Rod and Welt Coiled Work	63
81.	Foundation of Three Rods	64
82.	Foundation of Splints	64
83.	Interlocking Coils, Straw Foundation	64
84.	Open Coil, Inclosing Part of Foundation	64
85.	Interlocking Coils, Shred Foundation	65
86-87-88.	Fugcian Coiled Basket and Details	65
89.	Coiled Raffia Baskets	66
90.	" " "	68
91.	" " "	66
92.	" " "	70
93.	" " "	70
94.	Book Mark of Splint and Web Weave	72
95.	Weaving on Even Spokes	72
96.	Holding Spokes and Starting Weaver	73
97.	Dividing into Single Spokes	73
98.	Inserting Odd Spoke	74
99.	Right Side of Center with Odd Spoke	74
100.	Simple Open Border No. 1	75
101.	Detail of Open Border No. 2	75
102.	Open Border No. 2	75
103.	Starting New Weaver	75
104.	Splicing Weavers	75
105.	Web Weaving with Raffia	76
106.	Simple Rattan Baskets, Web Weave	77
107.	Detail of Insertion	78
108.	Insertion	78
109.	Open Border No. 3	78
110.	Open Border No. 4	78
111.	Detail of Plait	79
112.	Plait	79
113.	Open Border No. 5	79
114.	Detail of Last Three Spokes	79
115.	Closed Border No. 1	80
116.	Detail of Closed Border No. 2	80
117.	" " " "	80
118.	" " " "	80
119.	" " " "	81
120.	Detail of Closed Border No. 3	81
121.	" " " "	81
122.	Closed Border No. 3	81
123.	Detail of Oval Base	82
124.	" " "	82
125.	Split Spoke for Round Base	82
126.	Spokes Threaded for Round Base	82
127.	Weaving of Round Base with Two Weavers	83
128.	Round Base with Spokes in Pairs	83
129.	Round Base with Spokes Separated	85
130.	Commencing Oblong Oval Base	85

Fig. Page.
131. Oblong Oval Base..... 86
132. Detail of Center of Oval Base..... 87
133. " " " " 87
134. Base of Twined Weaving with Inserted Corners 84
135. Simple Web Baskets of Rattan.... 31
136. Rattan Basket with Plaited Straw as Weaver 90
137. Web Woven Bird Nest..... 90
138. Basket with Fancy Base..... 92
139. Splint Web Weave 92
140. Base of Splint Basket..... 96
141. Inserting Weaver in Splint Base.. 94
142. Jumping Two Spokes..... 96
143. Spokes Turned Up for Sides..... 9
144. Baskets of Splint and Sweet Grass. 98
145. Splint and Plaited Sweet Grass Baskets 99
146. Splint and Plaited Sweet Grass Baskets 100
147. Madeira Border No. 2.....102
148. Madeira Pairing for Plait.....102
149. Commencing Flat Plait Border....105
150. Flat Plait Border—Second Position of Spokes 105
151. Ditto in progress, with Portion of Finished Border.....105
152. Flat Plait Border, Finished.....105
153. Splint and Twined Baskets.....106
154. Collar Baskets of Rush, Raffia and Splint 108
155. Bases of Fig. 154.....108
156. Surface Effects of Twined Open Work 110
157. Crossed Warp, Twined Weaving...110
158. Wristlets or Cuff Protectors.....111
159. Baskets from the Philippines.....112
160. Deerfield Straw Baskets..... 27
164. Section of Fluted Flower Basket. —Turning Down Spokes.....112
165. Ditto.—Curve Partly Worked.....113
166. Fluted Flower Basket.....113
167. Starting Square Work Basket.— Turning Weaver Round Corner Spokes 113
168. Square Work Basket, Wood Base.114
169. Starting Lid of Square Basket....114
170. Turning Weaver Around Last Spokes 114
171. Detail of Twisted Handle.....114
172. Ditto 117
173. Oblong Carrying Basket.....117
174. Commencing Handle of Key Basket 117
175. Binding Handle of Key Basket, Commencing 117
176. Ditto, Finishing 118
177. Shallow Oval Basket 118
178. Starting Handle of Oval Basket— Inside 119
179. Ditto—Outside 119
180. Binding Handle of Oval Basket...119
181. Finishing ditto 119
182. Finishing off the Flat Rattan in Binding a Handle.....120
183. Waste Paper Basket.....120
184. Square Basket—Weaving Sides....120
185. Section ditto with Straight Corner.120
186. Plaited Handle 121
187. Method of Holding Basket When Weaving Sides 121
188. Yakutat Rattle Baskets.....123
189. Old Coiled Basketry.....124
190. White Mountain Apache Baskets.124
191. Coarse Checkerwork on Mat Weave 125
192. Twilled Weaving 125
193. Ditto 126
194. Ditto, Pressed on Ancient Pottery.127
195. Wrapped Weaving of the Mohaves 127
196. Ditto, from a Mound in Ohio.....127
197. Twined Weaving in Two Colors....126
198. Apache, Klikitat, etc., Baskets....128
199. Diagonal Twined Weaving.....128
200. Variety of Twined Work, Outside.128
201. Wrapped Twined Weaving.....129
202. Neah Bay Wrapped Twined Weaving 129
203. Twined Weaving, Inside.....129
205. The Tl Weave of the Pomas.....129
206. Three Ply Braid and Twined Work, Outside 130
207. Ditto, Inside 130
208. Three Ply Braid, Outside.....130
209. Ditto, Inside 130
210. Three Ply and Plain Twined Work.131
211. Overlaid Twined Weaving.....131
212. Frapped Twined Work.....131
215. Washoe Basket 132
216. Yokut Basket 132
217. Ditto 132
218. Poma Bam Tush Weave.....132
219. Yokut Dance Basket.....133
220. Yokut Bottle-Neck Basket.....133
221. Klikitat Imbricated Weaving.....133
222. Imbricated Basketry Work of Thompson River Indians.....134
223. Imbricated Coiled Work, Called Klikitat 134



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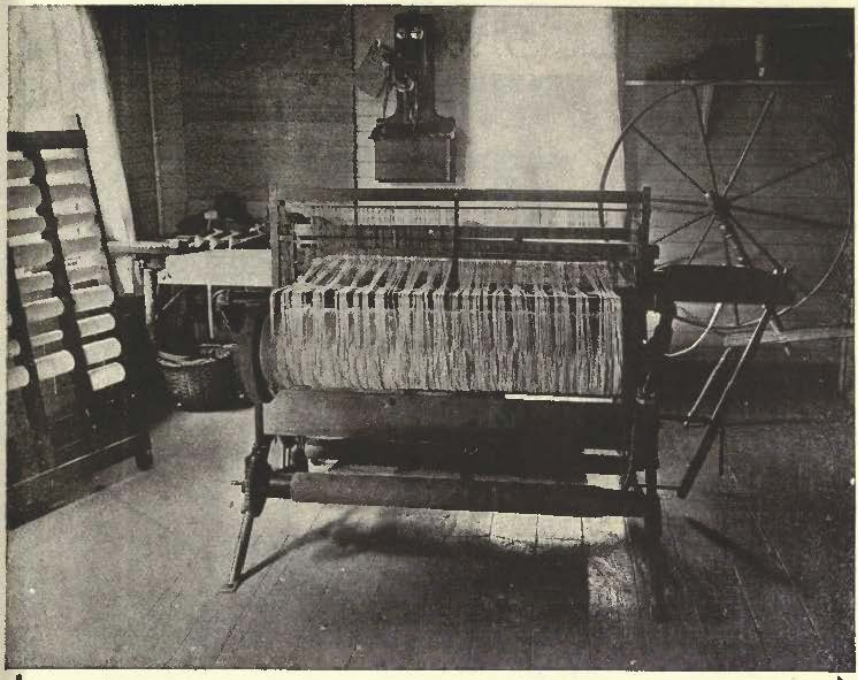

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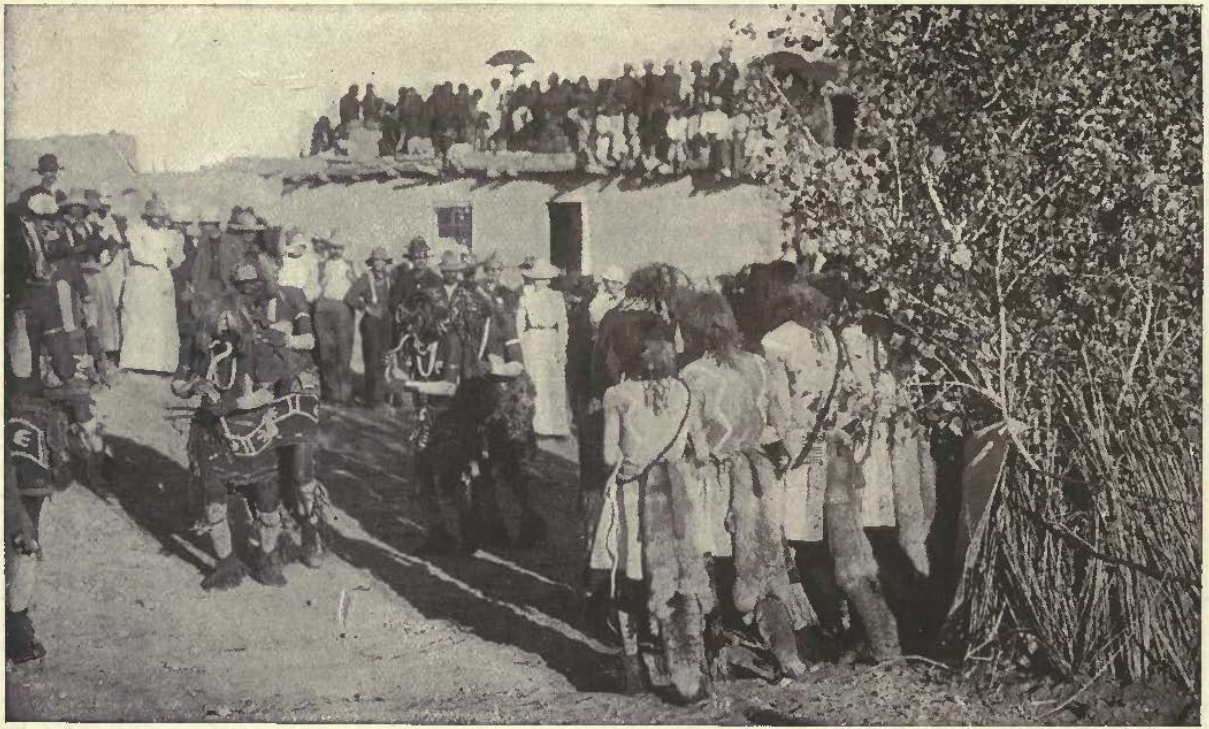

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CONTENTS

INTRODUCTORY

CHAPTER

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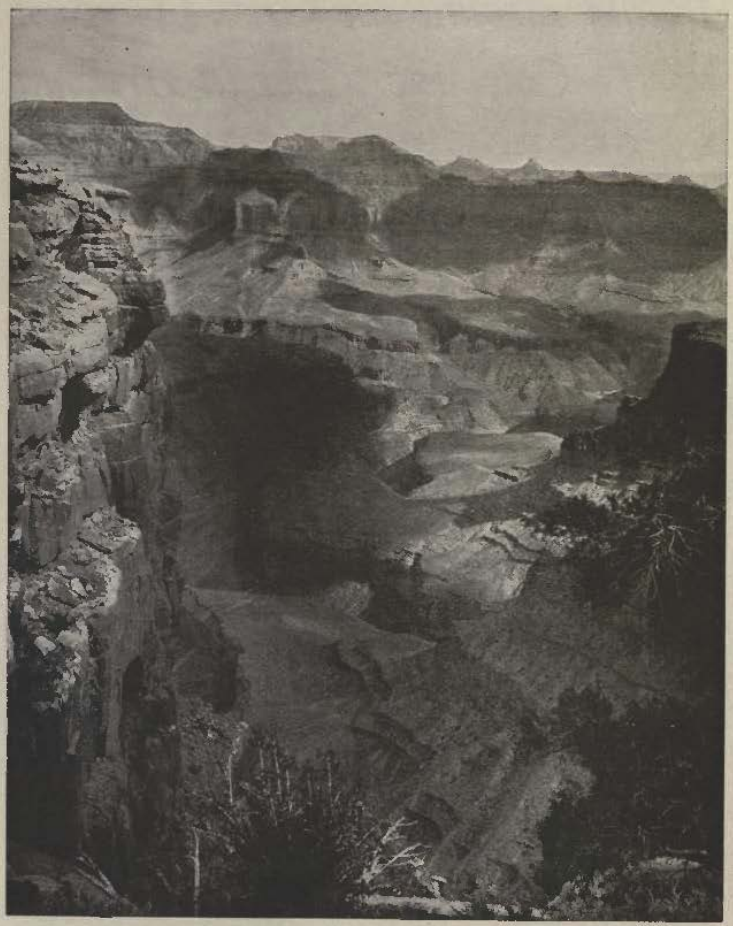

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CONTENTS

CHAPTER

I. The Colorado River and its Canyons.
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XX. John D. Lee and the Mountain Meadow Massacre.
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XXIII. The Tanner–French Trail.
XXIV. The Red Canyon and Old Trails.
XXV. Grand Canyon Forest Reserve.
XXVI. The Topocobya Trail and Havasu (Cataract) Canyon.
XXVII. The Havasupai Indians and their Canyon Home.
XXVIII. Havasu (Cataract) Canyon and its Waterfalls and Limestone Caves.
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